

# **TOSHIBA**

FILE NO. 330-200106

## **SERVICE MANUAL**

## **DLP PROJECTOR**

### ***TDP-T3***

### ***TDP-S3***

### ***TDP-MT5***



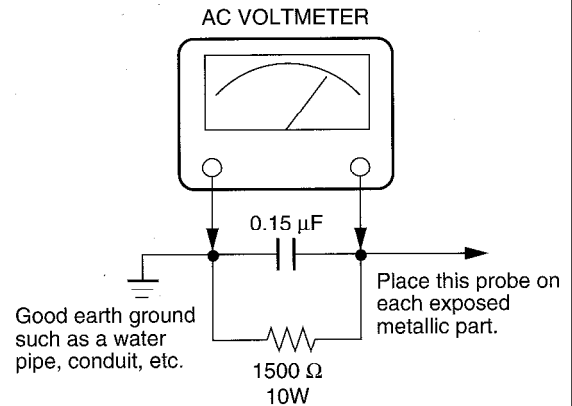
**TDP-T3**

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## SAFETY PRECAUTION

**WARNING:** Service should not be attempted by anyone unfamiliar with the necessary precautions on this projector. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the projector and the AC line before any service is performed on the projector.
2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
3. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000ohm per volt or more sensitivity in the following manner: Connect a 1500ohm 10W resistor, paralleled by a 0.15  $\mu$ F, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500ohm resistor and 0.15  $\mu$ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 5.25V(rms). This corresponds to 3.5 mA(AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



## PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

## ULTRAVIOLET DANGER IN SERVICE MODE

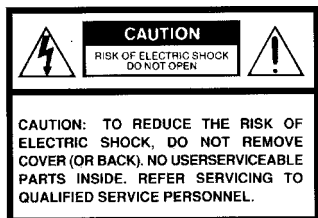
Eye damage may result from directly viewing the light produced by the lamp used in this product. Always turn off lamp before opening this cover. Ultraviolet radiation eye protection required during servicing.

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# SAFETY PRECAUTIONS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDETHE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIRED PERSONNEL ONLY.

**CAUTION:** Laser beam is emitted when the laser button of the remote control is pressed. Do not look from the front of the remote control. Do not face toward a person or to a mirror.

## FCC Radio Frequency Interference Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**WARNING:** Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user's authority to operate the equipment.

**Notice:** This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

# IMPORTANT PRECAUTIONS

## Save Original Packing Materials

The original shipping carton and packing materials will come in handy if you ever have to ship your LCD projector. For maximum protection, repack the set as it was originally packed at the factory.

## Avoid Volatile Liquid

Do not use volatile liquids, such as an insect spray, near the unit. Do not leave rubber or plastic products touching the unit for a long time. They will mar the finish.

## Moisture Condensation

Never operate this unit immediately after moving it from a cold location to a warm location. When the unit is exposed to such a change in temperature, moisture may condense on the crucial internal parts. To prevent the unit from possible damage, do not use the unit for at least 2 hours when there is an extreme or sudden change in temperature.

In the spaces provided below, record the Model and Serial No. located at the rear of your LCD projector.

Mode No. \_\_\_\_\_ Serial No. \_\_\_\_\_

Retain this information for future reference.

# IMPORTANT SAFETY INSTRUCTIONS

**CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.**

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.

**DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.**

## 1. Read Owner's Manual

After unpacking this product, read the owner's manual carefully, and follow all the operating and other instructions.



## 2. Power Sources

This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

For products intended to operate from battery power, or other sources, refer to the operating instructions.



## 3. Source of Light

Do not look into the lens while the lamp is on. The strong light from the lamp may cause damage to your eyes or sight.



## 4. Ventilation

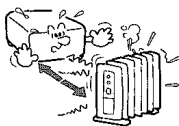
Openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.



# IMPORTANT SAFETY INSTRUCTIONS

## 5. Heat

The product should be situated away from heat sources such as radiators heat registers, stoves, or other products (including amplifiers) that produce heat.



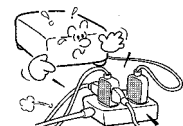
## 7. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.



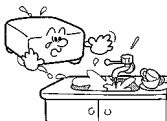
## 9. Overloading

Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.



## 6. Water and Moisture

Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like.



## 8. Power-Cord Protection

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.



## 10. Lightning

For added protection for this product during storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.

This will prevent damage to the product due to lightning and power-line surges.



# Introducing the TDP-T3, TDP-S3 and TDP-MT5

The TDP-T3, the TDP-S3 and the TDP-MT5 projectors use DLP (digital light processing) technology from Texas Instruments.

The TDP-T3 has a native XGA resolution (1,064 x 768 pixels), while the TDP-S3 has a native SVGA resolution (800 x 600 pixels). Both the T3 and S3 have 2000 lumens (or 1600 in conservation mode). The



TDP-MT5 is optimized for video reproduction with 848 x 480 (16:9) and 800 x 600 (4:3) resolutions. While it has fewer lumens (1000) than the other two projectors, it has a higher contrast ratio and better color saturation.

Below is a table that shows the replacement part differences among the projectors.

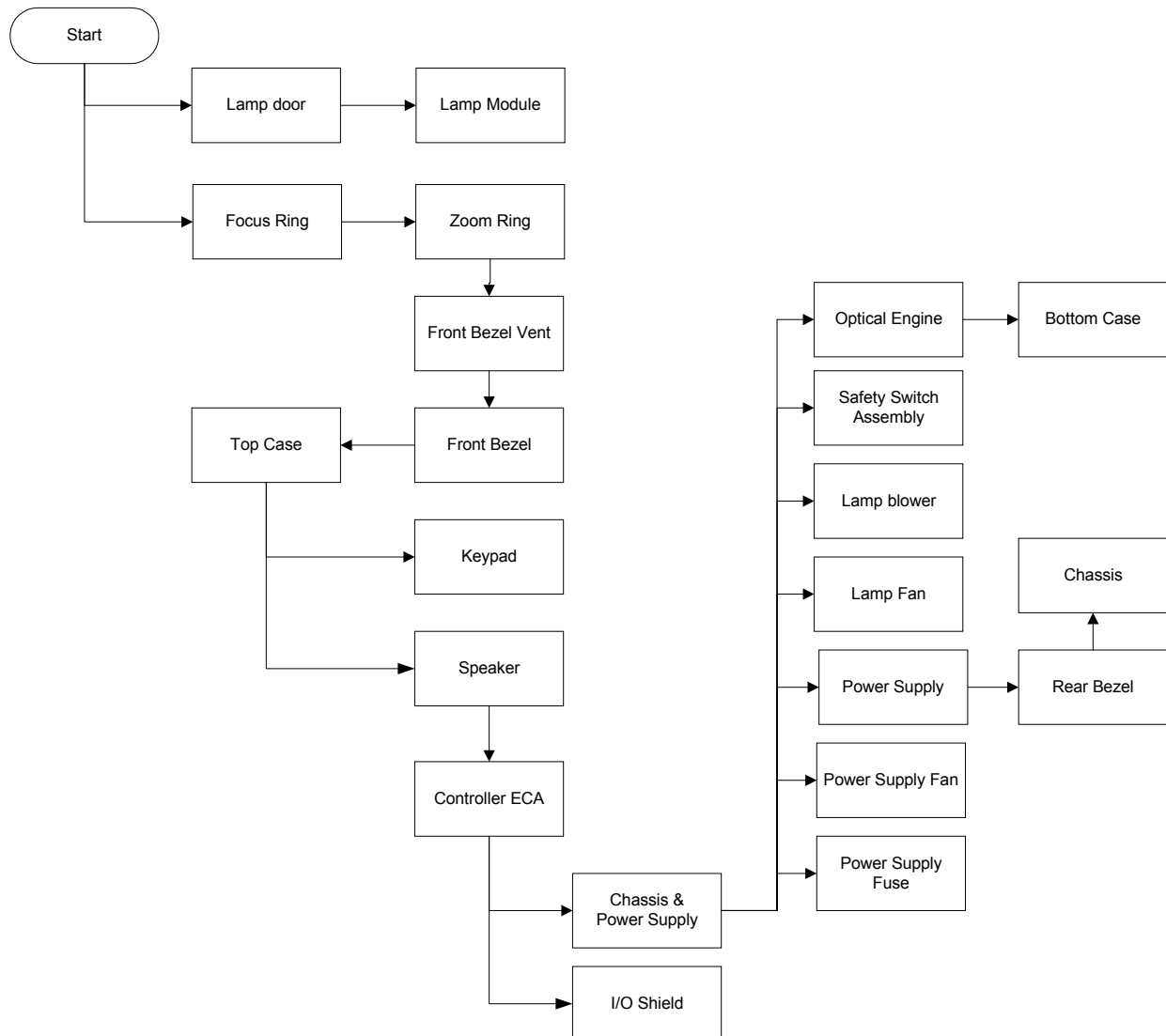
## The TDP-T3

Part	TDP-T3 part number	TDP-S3 part number	TDP-MT5 part number
Controller ECA	510-1530-xx	510-1579-xx	510-1575-xx
Optical Engine	505-1180-xx	505-1181-xx	505-1173-xx
Front bezel	505-0976-xx	505-0976-xx	505-1193-xx
Front bezel vent	505-0969-xx	505-0969-xx	505-1195-xx
Lamp door	505-0978-xx	505-0978-xx	505-1196-xx
Rear bezel	505-0966-xx	505-0966-xx	505-1129-xx
Bottom case	505-0970-xx	505-0970-xx	505-1191-xx
Top case	505-0982-xx	505-0982-xx	505-1188-xx
Toshiba nameplate	505-1060-xx	505-1060-xx	505-1197-xx
Label, Certification	020-1165-xx	020-1271-xx	020-1350-xx
Power supply insulator	329-0268-xx	329-0268-xx	329-0321-xx
Top I/O EMI gasket	N/A	N/A	505-1191-xx
I/O EMI shield gasket	N/A	N/A	329-0343-xx

# Parts Replacement

## Replaceable Part Hierarchy

Below is a flow chart of replaceable parts. It shows you at a glance what parts you need to remove to access any replaceable part in the projector.

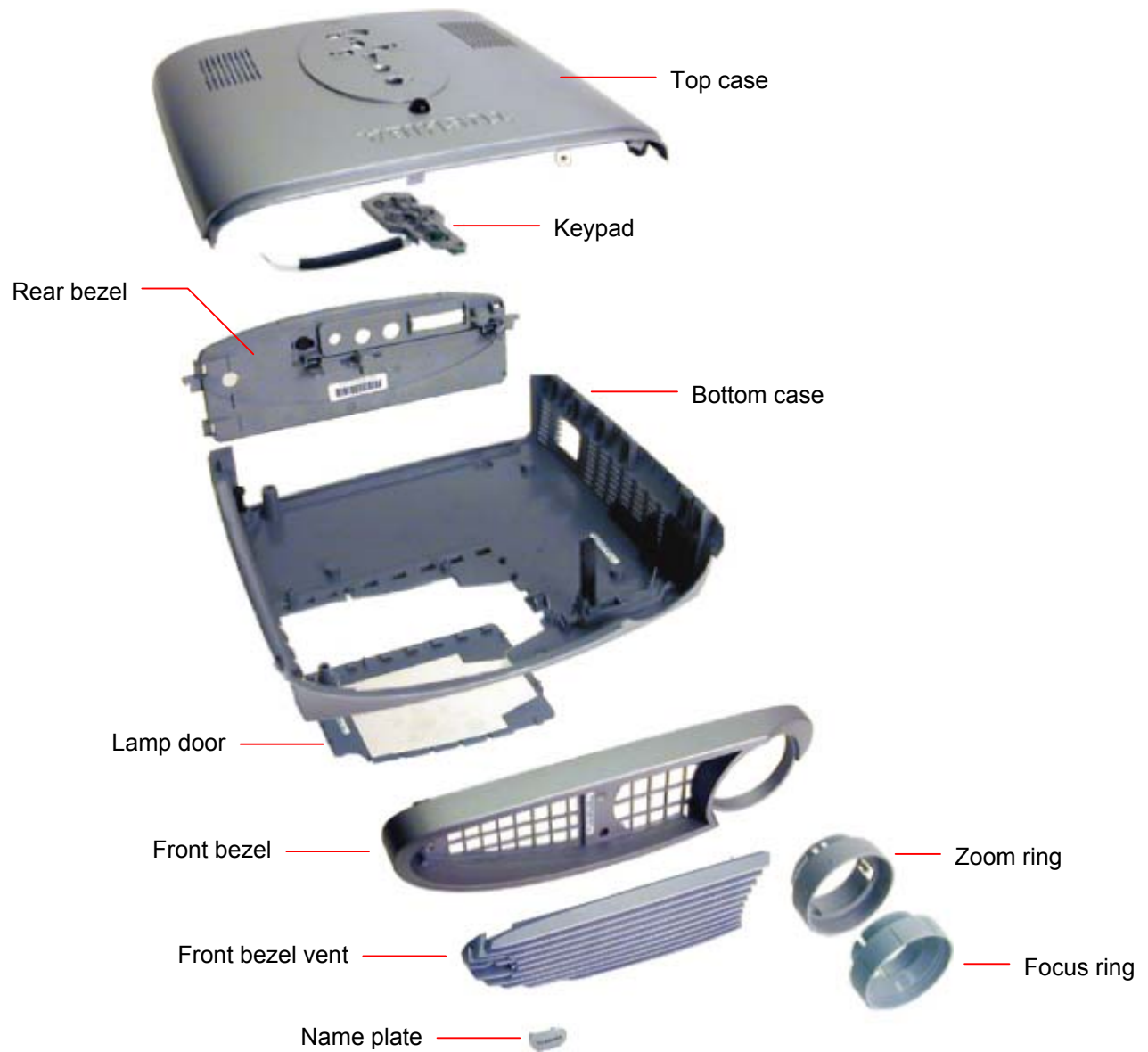




## Exploded views

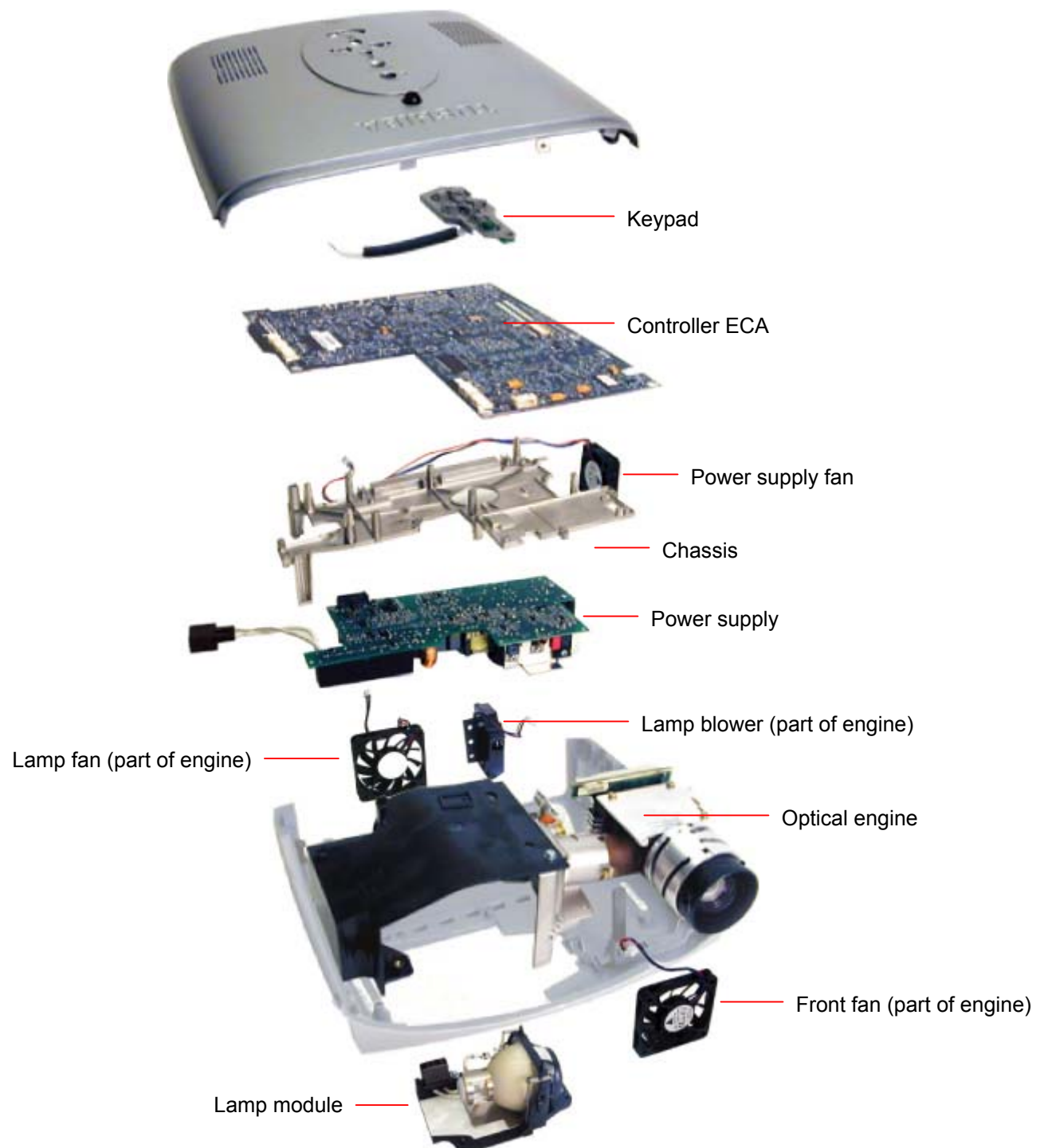
### Case parts

Below is an exploded view of the case parts in the TDP-T3/S3/MT5.



## Component parts

Below is an exploded view of the main components in the TDP-T3/S3/MT5.



## Remove and replace the focus and zoom rings

The **focus ring** (505-0972-xx) fits around the front of the projection lens. The **zoom ring** (505-00974-xx) fits behind the focus ring. The lens cap (505-0841-xx) snaps onto the focus ring.

Both the focus ring and the zoom ring snap into place. They can be replaced without removing the front bezel or top case.

- 1 Stand the projector lens side up on the work space.
- 2 Grasp the focus ring and pull it off of the lens barrel.



- 3 Grasp the zoom ring and pull it off of the lens barrel.

### Assembly Notes

- ◆ Both rings have three slots or tabs that align with pins or slots on the lens barrel.
- ◆ Align the tabs on the zoom ring with the three slots on the lens barrel, and then press it into place. It should fit close to the front bezel, but should not touch the bezel.



- ◆ Align the three slots on the focus ring with the three alignment pins on the end of the lens barrel, and then press it into place.



- ◆ Depending on the focus setting, the focus ring may not appear to fully seat itself. Turn the ring clockwise. It should move inward until it nearly touches the zoom ring.
- ◆ Place the lens cap over the focus ring.

## Remove and replace the front bezel and front bezel vent

The **front bezel** (TDP-S3/T3: 505-0972-xx; TDP-MT5: 505-1193-xx) fastens to the front of the projector.

The **front bezel vent** (TDP-S3/T3: 505-0969-xx; TDP-MT5: 505-1195-xx), in turn, fastens to the front bezel. The **Toshiba nameplate** (TDP-S3/T3, 505-1060-xx; TDP-MT5, 505-1197-xx) snaps to the front of the front bezel vent.

To remove the bezel vent, do the following:

- 1 Remove the focus and zoom rings (see page 11).
- 2 Use a small bladed screwdriver to pry off the Toshiba nameplate. The nameplate covers the screws on the front bezel vent.



- 3 Use a T-10 driver to remove the M3x14 Torx screw on the end of the vent opposite the projection lens.



- 4 Use a small screwdriver to lift the end of the vent near the screw, then pull the vent off of the projector. You may need to use a small bladed screw driver to pry it up.



- 5 Use a T-10 driver to remove the two black M3x8 Torx screws that fasten the front bezel to the projector near the lens.



- 6 Use a T-10 driver to remove the black M3x48 cone point Torx screw from the bottom of the projector adjacent to the lamp door.



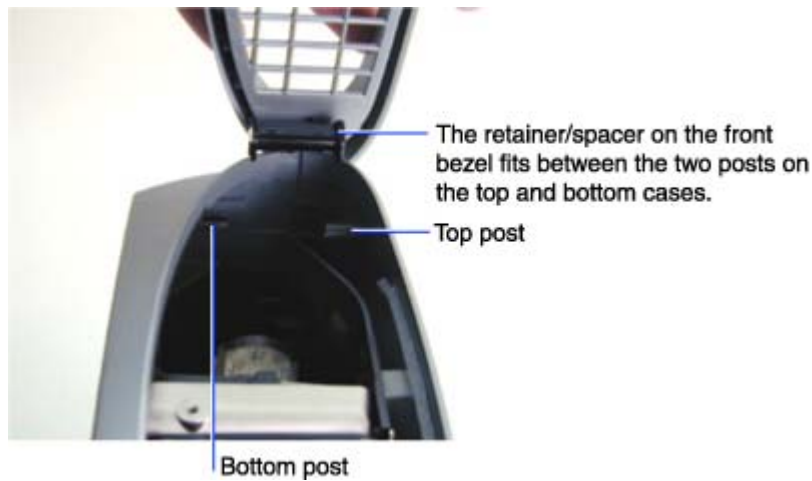
- 7 Lift the end of the front bezel near the lamp first, then swing it out to disengage the other end.



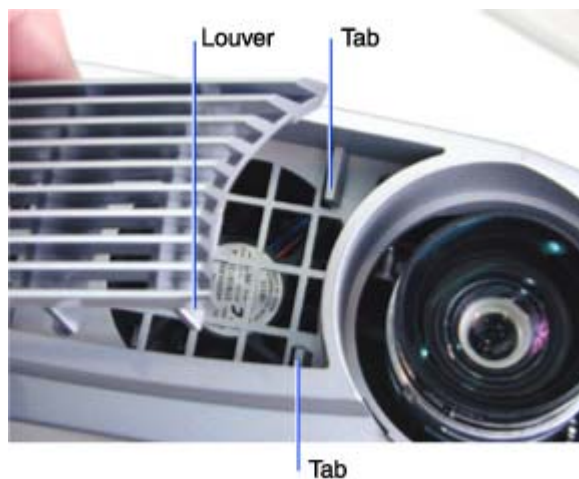


## Assembly Notes

- ◆ To install the front bezel, slide the retainer/spacer at the left side of the bezel between the top and bottom posts in the projector as you swing the bezel into place over the lens. The bezel should fit evenly around the top and bottom cases.



- ◆ Insert the black M3x48 cone point Torx screw into its hole in the bottom case. If it does not fully insert, it means that the front bezel is not properly installed. Torque the screw to 4 in.-lbs (.45 Nm)
- ◆ Torque the two black M3x8 Torx screws near the lens to 4 in.-lbs (.45 Nm).
- ◆ To install the bezel vent, slide the end nearest the lens toward the lens so that the two tabs on the front bezel engage the first vertical louver on the inside of the vent.



- ◆ Torque the M3x14 Torx screw on the bezel vent to 6 in.-lbs (.45 Nm).



## Remove and replace the lamp door and lamp module

The **lamp module** (SP-Lamp-LP5E) consists of a reflector assembly and frame. The reflector assembly contains a metal halide arc and a reflector. A frame made of metal and plastic holds the reflector assembly in place inside the projector.

The **lamp door** (TDP-S3/T3: 505-0978-xx; TDP-MT5: 505-1196-xx) fits over the lamp cavity. It includes a tab that closes the interlock switch when the door is shut.

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**CAUTION!** The lamp module gets very hot during operation. Allow the lamp to cool for 30 minutes before handling it.

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- 1 Place the projector upside down on the work surface.
- 2 To remove the lamp door, press the lip on the outside edge of the door until the door slides inward. Then swing the door open.



- 3 Loosen the two captive screws that secure the lamp to the lamp housing.



- 4 Swing the bail on the top of the lamp module up from its storage position, and then pull the module out of the projector.



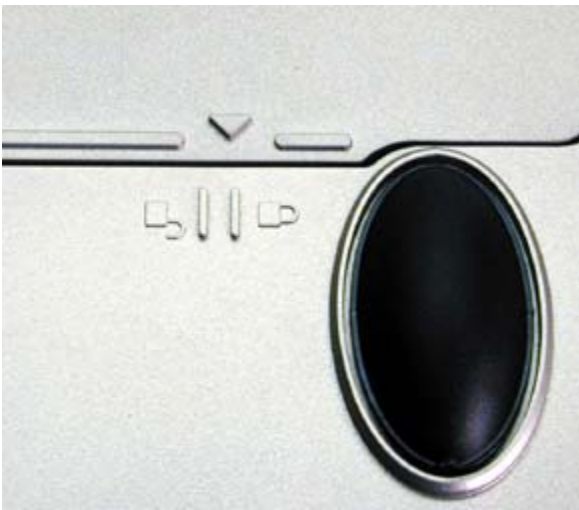
### ***Assembly Notes***

- ◆ The lamp must be seated properly to fully ignite.
- ◆ Torque the two captive screws to 6 in.-lbs. (.678 Nm).
- ◆ Make sure the bail on the lamp module is folded down in storage position. It snaps into position.
- ◆ You must replace the lamp door for the projector to operate.





- ◆ The door is completely shut when the caret on the edge of the lamp door points to the lock icon.



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**NOTE** If the lamp door does not fit flush in the door opening, it is probably because the bail is not completely folded down.

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- ◆ If you installed a new lamp module, follow the directions below to **reset the lamp timer**.
  - a** Plug the projector in and turn it on.
  - b** Press and hold down the **Volume –** button. While holding the **Volume –** down, press the **Source** button. Hold both buttons down for five seconds.
  - c** To verify that the lamp timer is reset, press the **Menu** button and navigate to the Source menu. The lamp timer is the first item on the list.

## Remove and replace the top case

The **top case** (TDP-S3/T3: 505-0982-xx; TDP-MT5: 505-1188-xx) covers the top half of the half of the projector. Once you remove the top case, you have access to FRUs inside the projector. A new top case also includes the IR ECA and cable.

- 1 Remove the following items:

Front bezel and front bezel vent (see page 13)

Focus and zoom rings (see page 11)

- 2 Place the projector on its top, and then remove the black M3x48 cone point Torx screw at the rear of the bottom case. The front screw was taken out when you removed the front bezel.

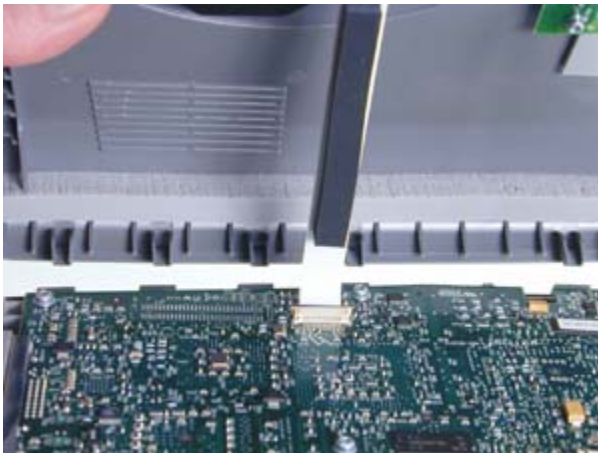


- 3 Place the projector right side up.

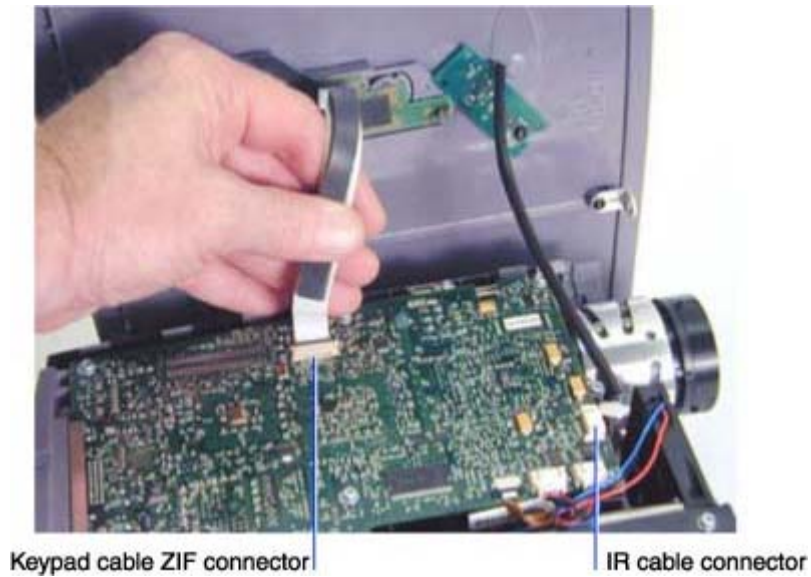
- 4 Lift the side of the case opposite the projection lens. Take care as you swing the case open: cables run between the top case and controller ECA.



- 5 Disengage the hinges on the side of the top case closest to the lens.



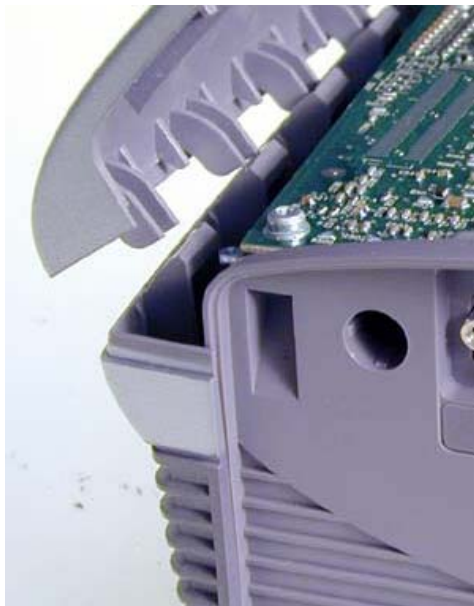
- 6 Place the top case next to the projector, and then disconnect the keypad cable from the ZIF connector on the controller ECA and the IR cable from its connector.



- 7 If you are going to replace the top case with a new one, remove the keypad (see page 23).

### **Assembly Notes**

- ◆ If you're replacing the top case with a new one, install the keypad on the inside of the case (see page 23).
- ◆ Connect the keypad and IR cables first. Then engage the hinges on the lens side of the projector.



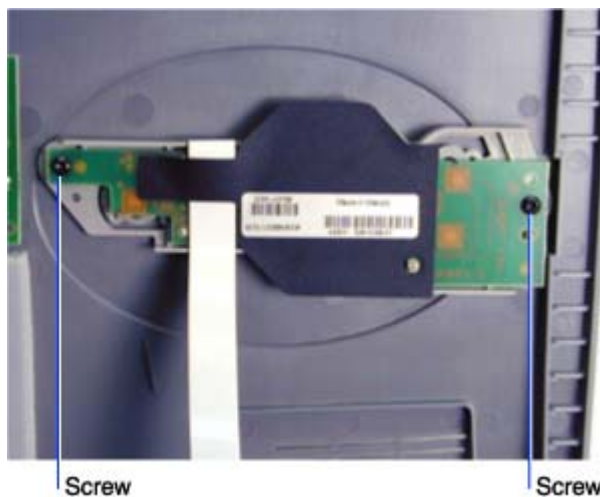
- ◆ Swing the top case shut, making sure that it fits flush over the bottom case.
- ◆ Torque the black M3x48 cone point Torx screw to 4 in.-lbs. (.452 Nm)



## Remove and replace the keypad

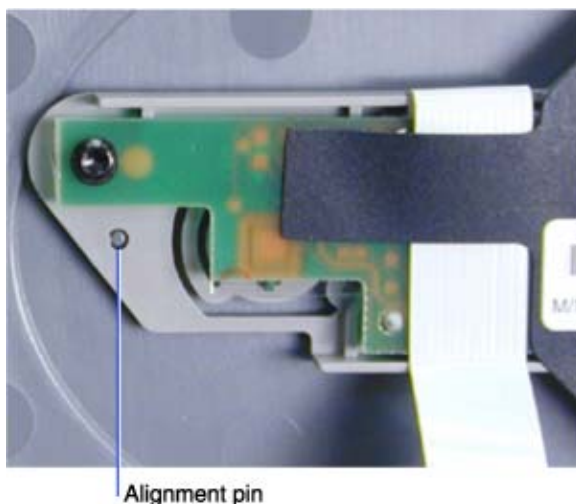
The **keypad** (526-0099-xx) fastens to the inside of the top case. The assembly includes the keypad ECA, the key set, and the keypad cable. The individual pieces remain together when you remove the keypad.

- 1 Remove the following items:
  - Front bezel and front bezel vent (see page 13)
  - Focus and zoom rings (see page 11)
  - Top case (see page 20)
- 2 Place the top case face down on the work surface.
- 3 Remove the two black M3x6 Plastite Torx screws that fasten the keypad to the top case, and then lift the keypad and cable out.



### Assembly Notes

- ◆ When you install the keypad, make sure that the alignment pins in the top case fit into the holes at each end of the keypad ECA.



- ◆ Torque the two black M3x6 Plastite Torx screws to 4 in.-lbs. (.452 Nm).

## Remove and replace the front fan

The **front fan** (526-0079-xx) fastens to the front of the optical engine adjacent to the projection lens. It faces outward (label side out) so that it exhausts hot air from the inside of the projector. The front fan is also included with a new optical engine.

- 1 Remove the following items:

Focus and zoom rings (see page 11)

Front bezel and bezel vent (see page 13)

Top case (see page 20)

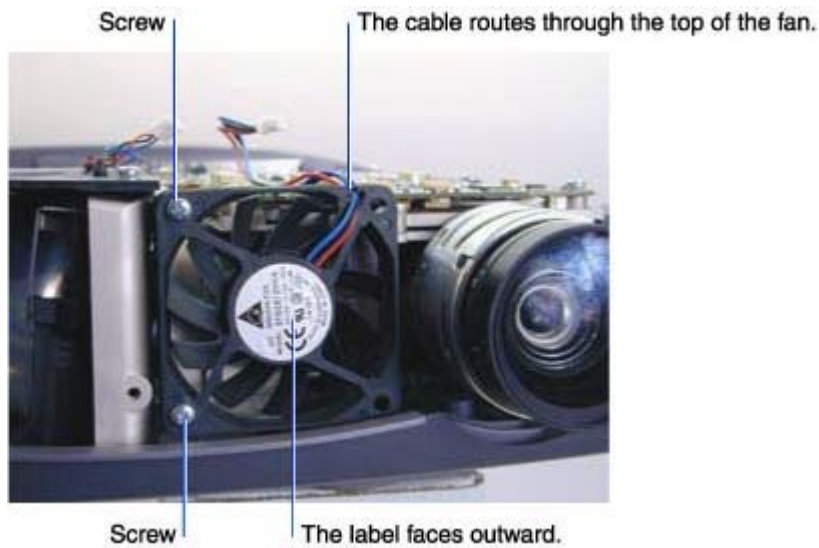
- 2 Unplug the front fan cable from connector J508 and the lamp blower cable from connector J507 on the controller ECA. Untwist the fan cable from the blower cable.



Unplug the cables from J507 and J508.



- 3 Remove the two M3x14 Torx screws that fasten the front fan to the optical engine. Then remove the fan from the engine.



### **Assembly Notes**

- ◆ Orient the fan so that the label faces outward and the cable emerges on the top right side of the fan. See the illustration above.
- ◆ Torque the two screws to 6 in/lbs (.68 Nm).
- ◆ Twist the fan and blower cables together. Plug the blower cable into connector J507 and the fan cable into connector J508 on the controller ECA.



## Remove and replace the speaker assembly

The speaker assembly mounts on two posts adjacent to the controller ECA. The speaker assembly consists of the **speaker** (526-0081-xx), the **speaker gasket** (329-0276-xx), and the **speaker bracket** (340-0888-xx). Each piece is available separately.

- 1 Remove the following items:

Front bezel and front bezel vent (see page 13)

Focus and zoom rings (see page 11)

Top case (see page 20)

- 2 Use a T-10 driver to remove the M3x8 Torx screw that fastens the speaker to the chassis.



- 3 Move the speaker assembly aside and unplug the speaker cable from its connector on the controller ECA.



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**NOTE** If you removed the speaker to access another part, set the speaker assembly aside and go to the next part. If you are replacing the speaker or bracket, continue with the instructions below.

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- 4 Peel the speaker gasket and attached screen off of the speaker and bracket. Discard the gasket.



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**NOTE** When you disassemble the speaker assembly, the gasket and attached screen is ruined. When you replace either the speaker or speaker bracket, you must replace the gasket at the same time.

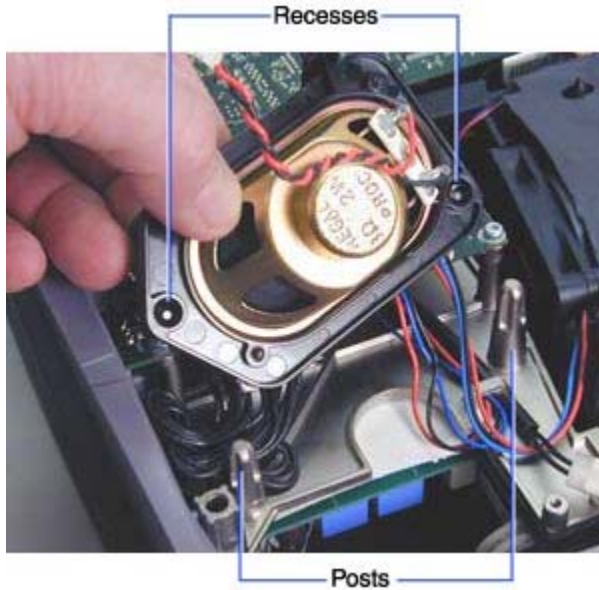
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- 5 Remove the two black M3x6 Plastite Torx screws from the top of the speaker assembly. Then separate the speaker and gasket by pressing the bottom of the speaker up through the top of the assembly.



### Assembly Notes

- ◆ Assemble the speaker and speaker bracket so that the connectors face the end with the bracket mounting arm. Mount the speaker on the bracket, pressing the two posts on the bracket through the two unused screw holes on the speaker. See step 5 above.
- ◆ Torque the two black M3x6 cone point Torx screws to 4 in.-lbs. (.452 Nm).
- ◆ Mount the speaker assembly in the projector so the two posts on the chassis mate with the two recesses on the bottom of the speaker bracket. The mounting arm faces the front of the projector. Torque the M3x8 Torx screw to 6 in/lbs (.68 Nm).





## Remove the controller ECA

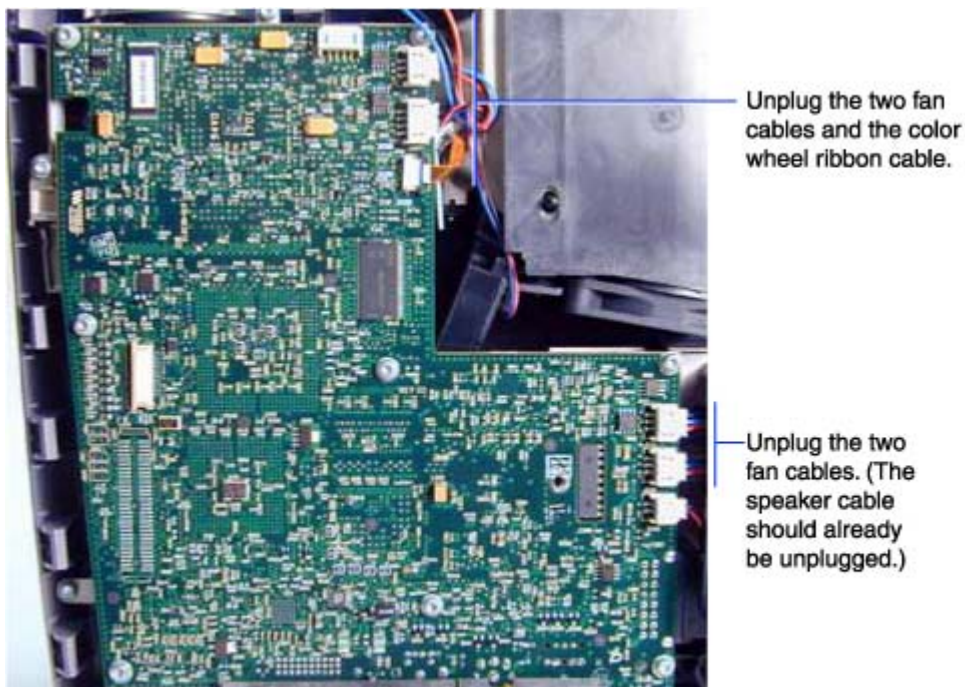
The **controller ECA** (TDP-S3: 510-1579-xx; TDP-T3: 510-1530-xx) mounts to the top of the metal chassis above the optical engine and power supply. It is fastens to the chassis with eight screws, and it connects to the DMD ECA on the optical engine through a direct connector on the bottom of the controller.

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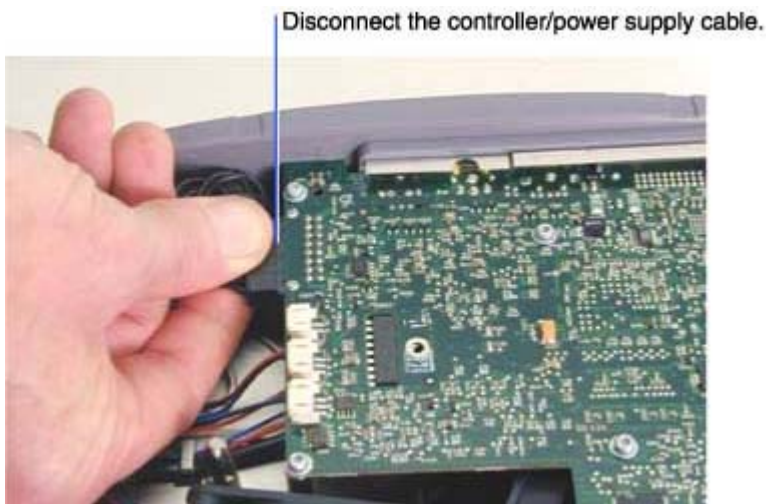
**WARNING** Be sure to take proper ESD precautions while working near the controller ECA. It can be easily damaged by static electricity.

---

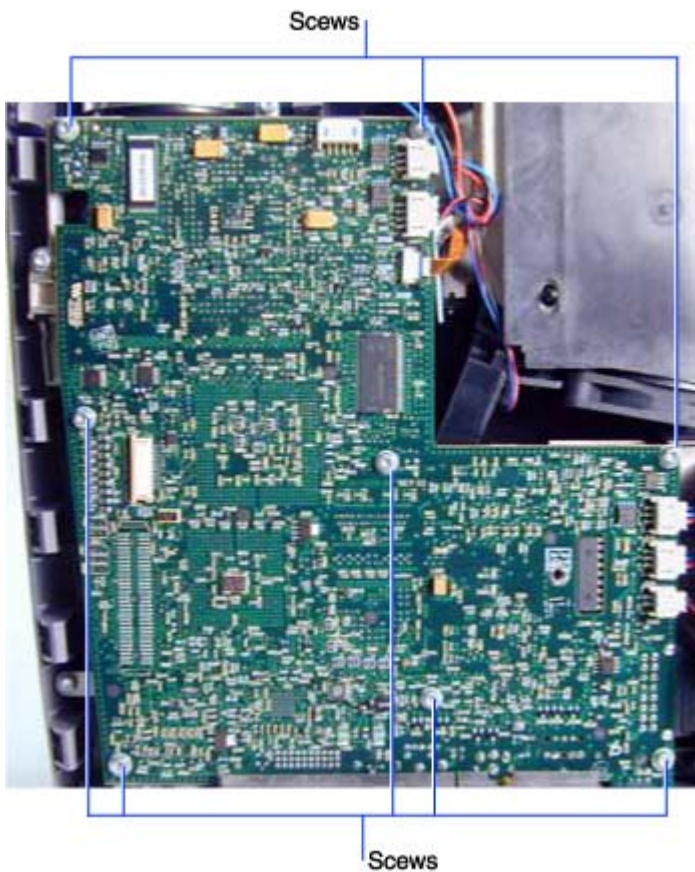
- 1 Remove the following items:
  - Focus and zoom rings (see page 11)
  - Front bezel and bezel vent (see page 13)
  - Top case (see page 20)
  - Speaker assembly (see page 24)
- 2 Unplug the four fan and blower cables, and the color wheel ribbon cable.



- 3 Unplug the controller/power supply cable from the corner of the controller ECA adjacent to where the speaker was located. Squeeze the latch on the bottom of the connector to release it.



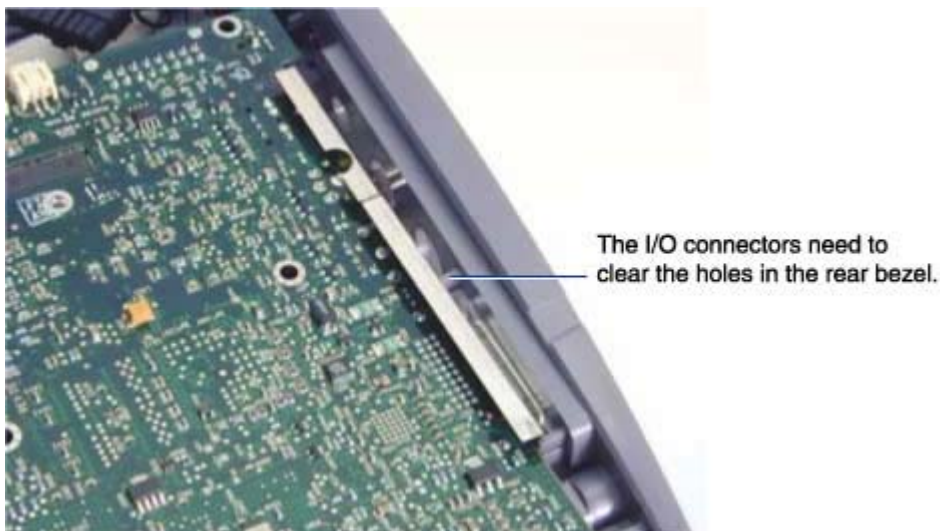
- 4 Remove the eight M3x8 Torx screws that fasten the controller ECA to the chassis.



- 5 Lift the edge of the controller over the optical engine to release the DMD/controller connector.



- 6 Slide the controller forward slightly so the I/O connectors clear the holes in the rear bezel. Then lift the controller out of the projector.



---

**WARNING** Make sure to store the controller ECA in a static-safe container.

---

- 7 If you are replacing the controller with a new one, remove the I/O EMI shield (see page 34).

For information on installing the controller ECA, see page 32.



## Install the controller ECA

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**WARNING** Be sure to take proper ESD precautions while working near the controller ECA. It can be easily damaged by static electricity.

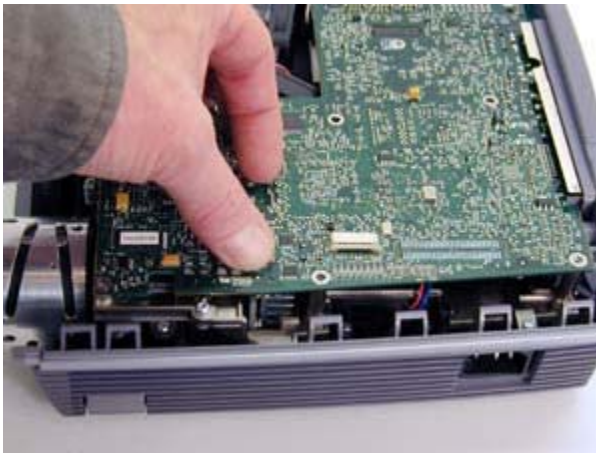
---

- 1 Slide the rear of the controller ECA into place first so that the I/O connectors align with the holes in the rear bezel.

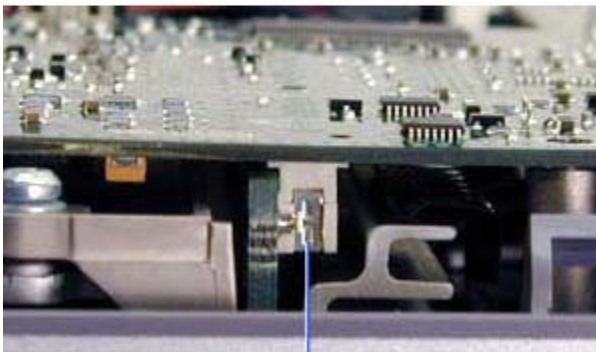




- 2 Align the controller/DMD connector, then press the controller down firmly. You will feel the connector halves engage.

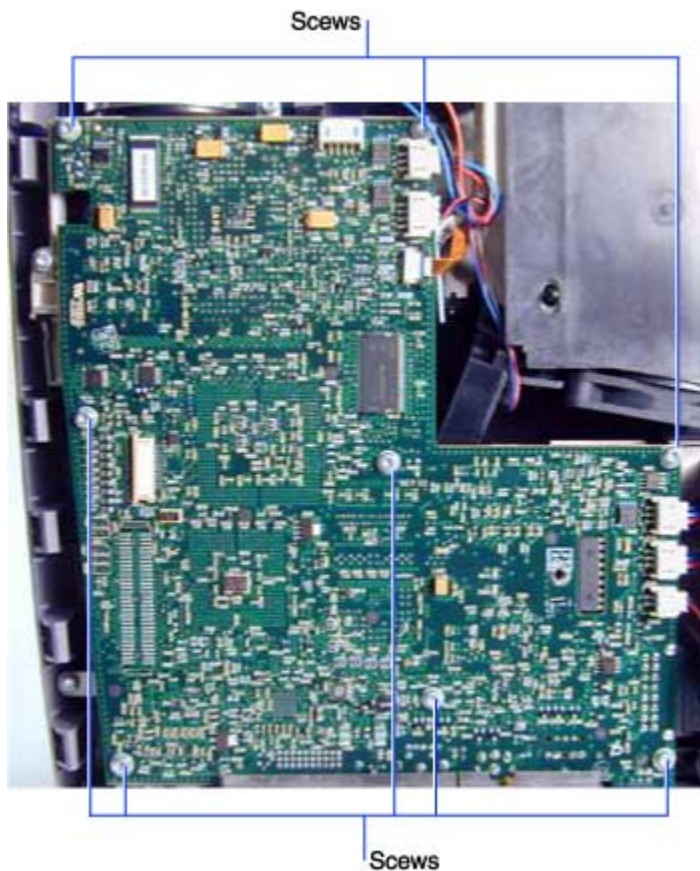


Controller/DMD  
connector unplugged



Controller/DMD  
connector plugged in

- 3 Use a T-10 driver to install the eight M3x8 Torx screws. Torque the screws to 6 in-lbs (.68 Nm).



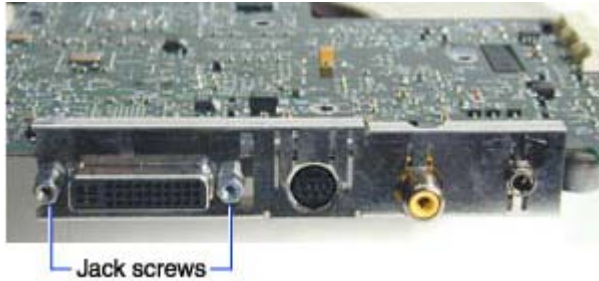
- 4 Plug in the fan and blower cables, the color wheel cable and the controller/power supply cable. Go to page 94 if you need help with the color wheel cable.
- 5 When you reassemble the projector, make sure you flash the unit with the latest Toshiba software. If you do not flash the projector, the incorrect splash screen will appear.

## Remove and replace the I/O EMI shield

The **I/O EMI shield** (330-0703-xx) fits over the I/O connectors on the rear of the controller ECA. It fastens to the controller with two jack screws.

You need to remove the controller ECA to access the I/O EMI shield.

- 1 Remove the Controller ECA (see page 29).
- 2 Remove the two 4-40 jack screws that fasten the EMI shield to the controller. The screws are located on either side of the M1 connector.



- 3 Carefully pull the I/O EMI shield off of the connectors. Take care not to bend the shield or the fingers as you work the shield off.

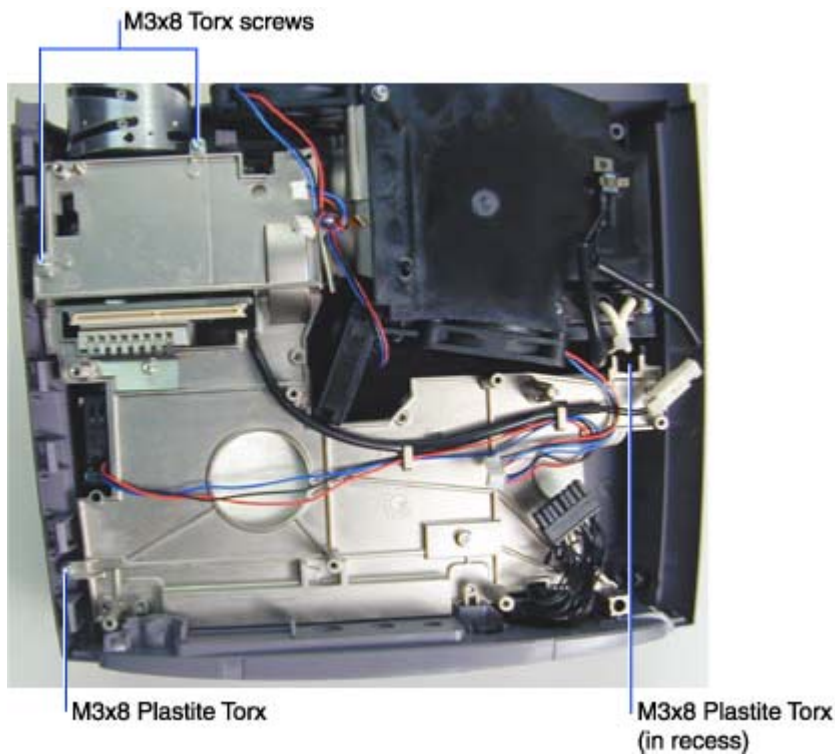
### Assembly Notes

- ◆ Make sure the fingers on the shield contact the connectors.
- ◆ Torque the jack screws to 2 in-lbs (.226 Nm).
- ◆ For information about installing the controller ECA, see page 32.

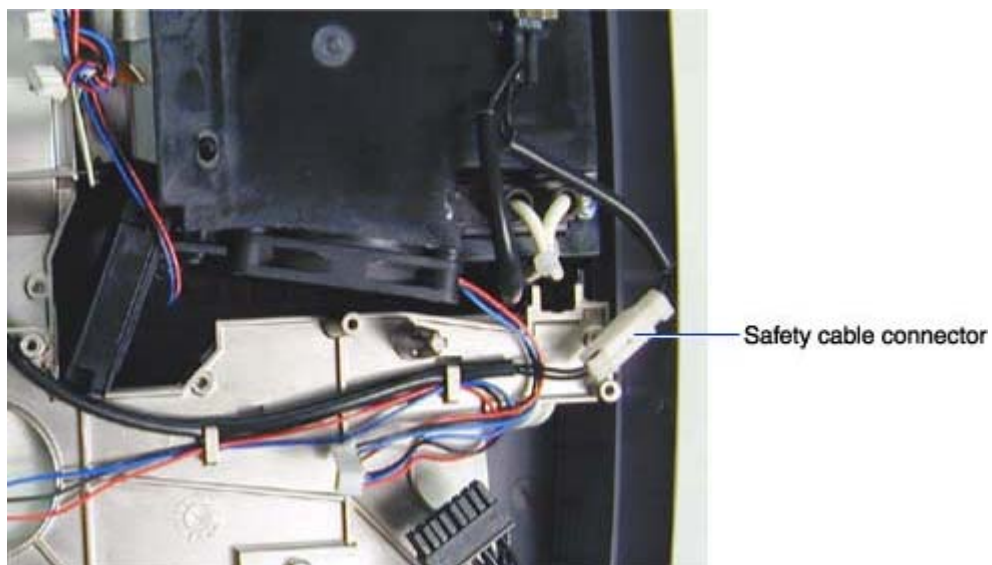
## Remove and replace the chassis and power supply

The metal chassis, power supply and rear bezel can be removed as one piece, providing access to the optical engine and other parts. With these parts removed, you also have direct access to the power supply, the power supply fuse, the power supply fan, and the interlock switch cable.

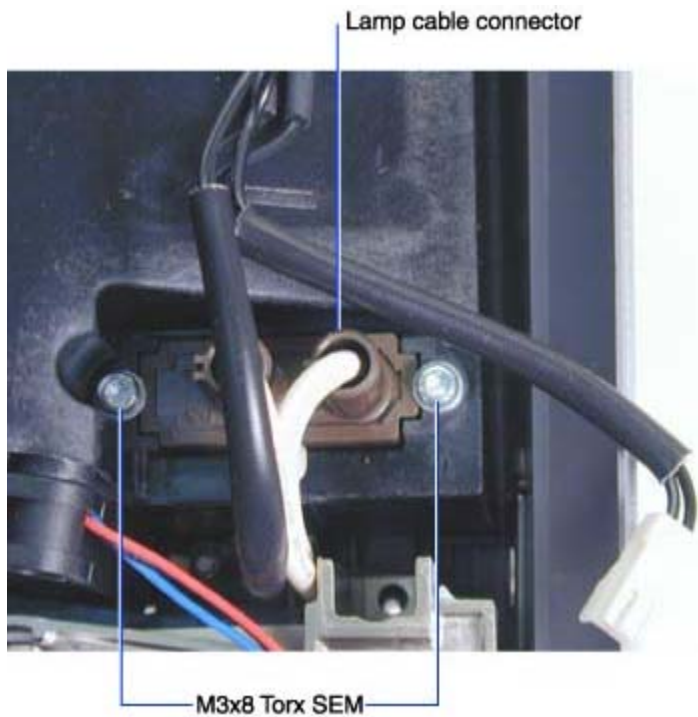
- 1 Remove the Controller ECA (see page 29).
- 2 Use a T-10 driver to remove the two M3x8 Torx screws near the front of the chassis, and the two M3x8 Plastite Torx screws near the rear of the chassis.



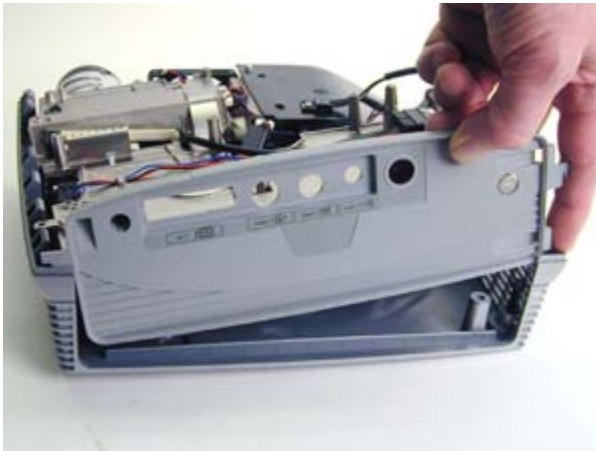
- 3 Unplug the white safety cable inline connector adjacent to the lamp housing.



- 4 Remove the lamp cable from the lamp connector on the lamp housing. To do this, remove the two M3x8 Torx screws, then lift the connector out.



- 5 Lift one side of the rear bezel while flexing the bottom case slightly outward.

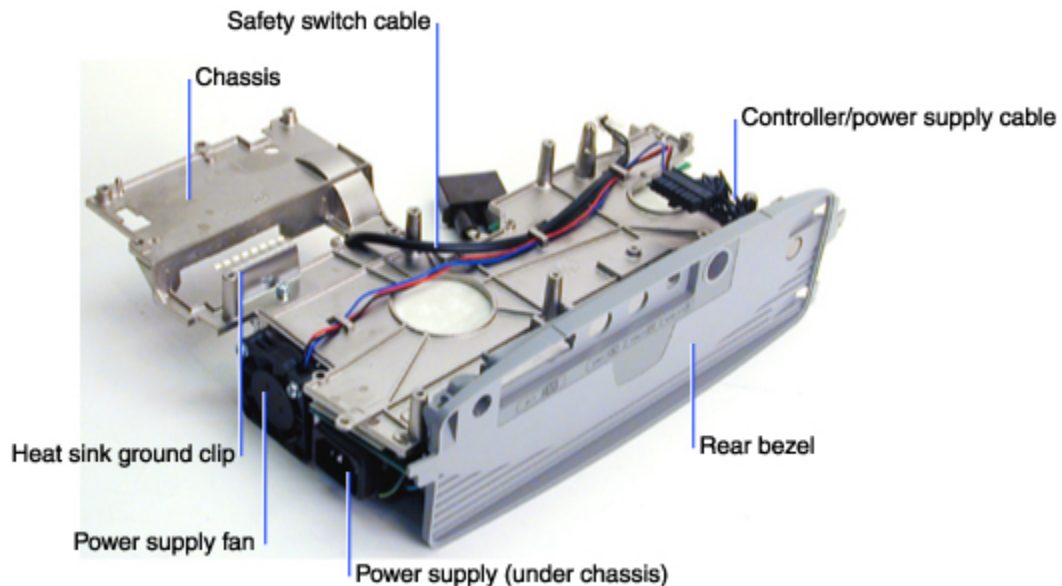




- 6 Lift the other side of the bezel up to loosen the chassis. Then grasp the front of the chassis and lift the chassis and attached power supply out of the projector.



Below is the chassis and power supply as it looks when removed from the bottom case.



- 7 Do one of the following:

If you removed the chassis and power supply to access another part, set it aside and select the part you want to remove in the dropdown menu at the top of the page.

—Or—

Click the part you want to remove from the list below:

Power supply fan and interlock switch cable (see page 52)

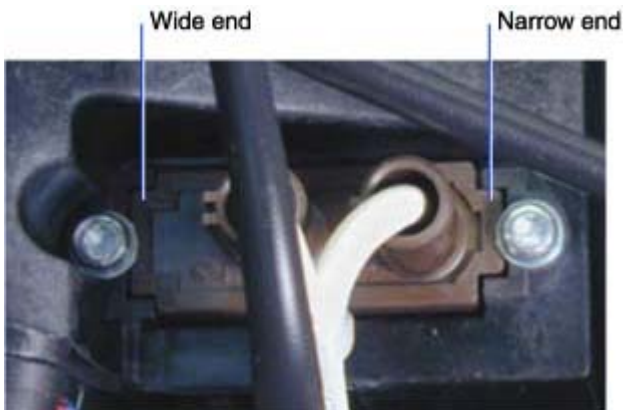
Power supply fuse (see page 54)

Power supply (see page 48)

Rear bezel (see page 40)

### Assembly Notes

- ◆ Insert rear bezel into the bottom case first. The outside tabs on the rear bezel fit *inside* the bottom case. Then lower the front of the chassis into place over the optical engine.
- ◆ Make sure to use the Plastite Torx screws in the *rear*. Torque them to 6 in.-lbs (.68 Nm). Torque the front Torx screws to 4 in.-lbs (.45 Nm).
- ◆ Make sure to connect the inline safety cable connector. If this cable is disconnected, the projector will not generate a lamp enable signal.
- ◆ Note that the lamp cable connector is keyed so that it fits into its hole in the lamp housing only one way.

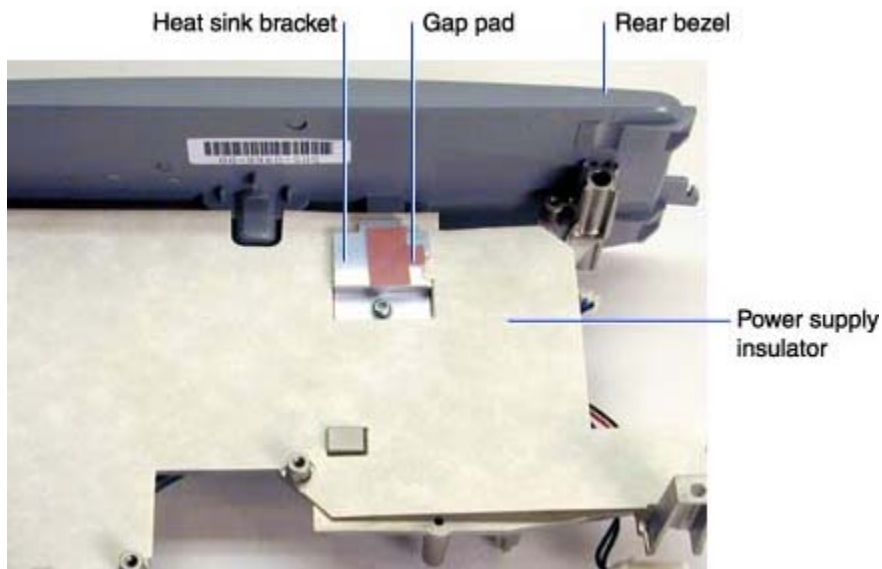


## Remove and replace the rear bezel

The **rear bezel** (TDP-S3/T3: 505-0966-xx; TDP-MT5: 505-1129-xx) fastens to the metal chassis. The **rear bezel label** (020-1177-xx) adheres to the outside of the rear bezel.

When you access the rear bezel, you also remove the **power supply insulator** (TDP-S3/T3: 329-0268-xx TDP-MT5: 329-0321-xx), the **diode gap pad** (329-0301-xx), and the **diode heat sink bracket** (330-0724-xx). These three parts provide thermal and electrical protection for the power supply.

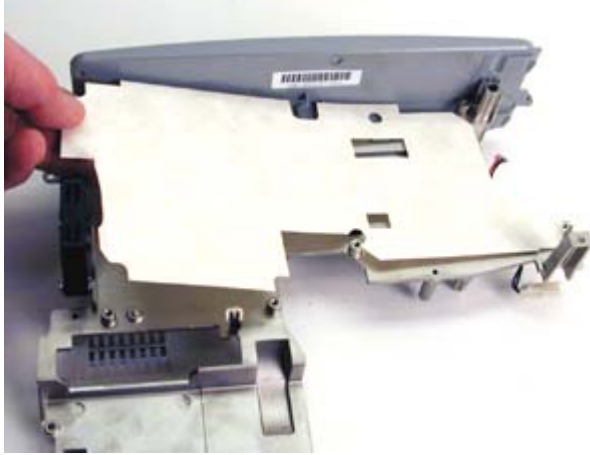
- 1 Remove the chassis and power supply from the bottom case (see page 36).
- 2 Remove the power supply from the chassis (see page 48).
- 3 Place the chassis on the work surface so that the paper power supply insulator faces upward.
- 4 Remove the M3x6 Torx screw that secures the diode heat sink bracket to the chassis, then remove the heat sink and attached gap pad.



- 5 Remove the gap pad. Place it in a secure location so that it does not get lost.



- 6 Lift the paper power supply insulator off of the chassis.



- 7 Remove the two M3x8 Torx screws that fasten the rear bezel to the chassis, then slide the bezel off of the chassis.

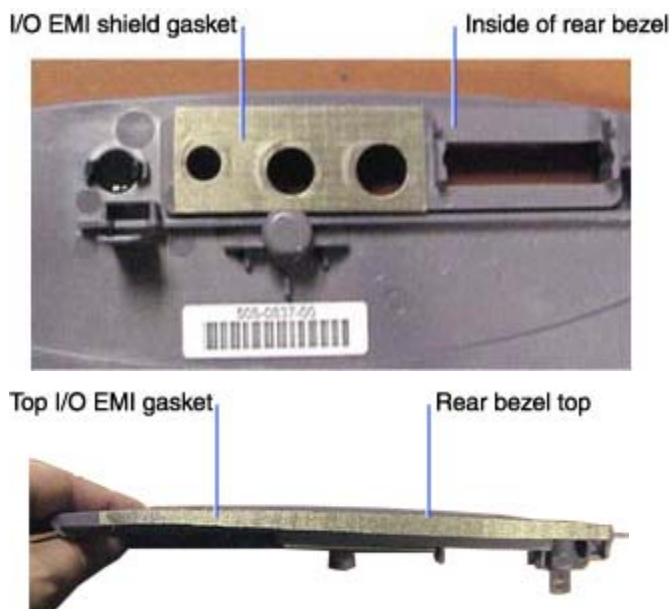


## Assembly Notes

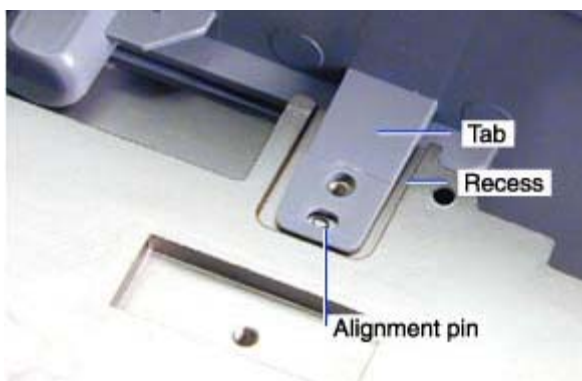
- ◆ If you are installing a new rear bezel, affix a new **rear bezel label** (020-1137-xx) to the outside of the bezel.



- ◆ If you are replacing the rear bezel on the TDP-MT5, you also need to adhere the **I/O EMI shield gasket** (329-0362-xx) and the **top I/O EMI gasket** (329-0361-xx) to the bezel. See the illustrations below.



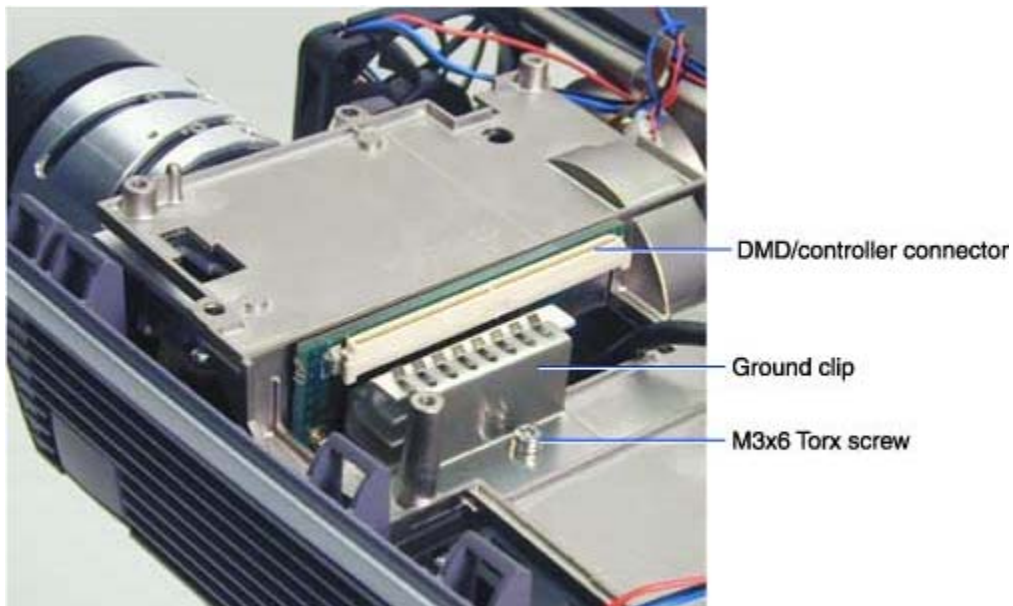
- ◆ To mount the rear bezel on the chassis, align the two tabs on the inside of the bezel with the two recesses on the chassis. Alignment pins in each recess engage holes in each tab. Torque the two M3x8 Torx screws to 6 in/lbs (.68 Nm)



## Remove and replace the chassis

The metal **chassis** (330-0702-xx) provides the necessary rigidity for the projector's internal components, yet it adds very little to the overall weight.

- 1 Remove the controller ECA (see page 29).
- 2 Remove the M3x6 Torx screw that fastens the **ground clip** (320-00724-xx) to the chassis adjacent to the DMD/controller connector. Then lift the ground clip off of the chassis. Set the ground clip aside. You need to fasten it to the new chassis.



- 3 Remove the Chassis and power supply (see page 36)
- 4 Place the chassis on the work space and remove the following parts:
  - Power supply fan and interlock switch cable (see page 52)
  - Power supply(see page 48)
  - Rear bezel (includes diode gap pad, heat sink and power supply insulator) (see page 40)You are left with the bare chassis.

### Assembly Notes

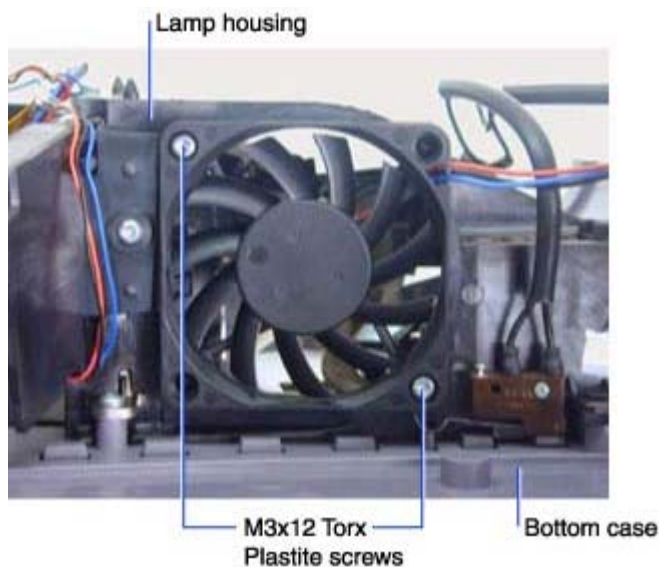
- ◆ Install the ground clip before you install the chassis and parts in the bottom case.
- ◆ Torque the M3x6 Torx screw on the ground clip to 6 in/lbs (.68 Nm).

## Remove and replace the lamp fan

The **lamp fan** (526-0079-xx) circulates air over the lamp module. The lamp fan is part of the lamp housing, and is also available separately. You can remove the lamp fan without first removing the optical engine.

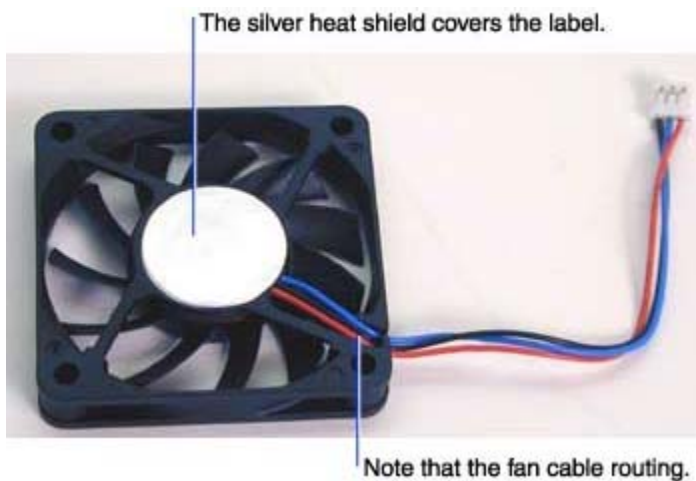
When you replace the lamp fan, you must also adhere a **lamp fan heat shield** (329-0306-XX) to the inside of the fan.

- 1 Remove the chassis and power supply from the bottom case (see page 36).
- 2 Remove the two M3x12 Plastite Torx screws that fasten the fan to the rear of the lamp housing. Then remove the fan.



### Assembly Notes

- ◆ Before installing the new lamp fan, you must adhere a heat shield to the center of the fan. The heat shield *must be placed over the label that is already on the fan*. This side points toward the fan.



- ◆ To install the lamp fan on the lamp housing, orient the fan so that the cable emerges from the top right corner as you face the fan. The heat shield must face inward. Pins on the lamp housing match two holes in the fan.



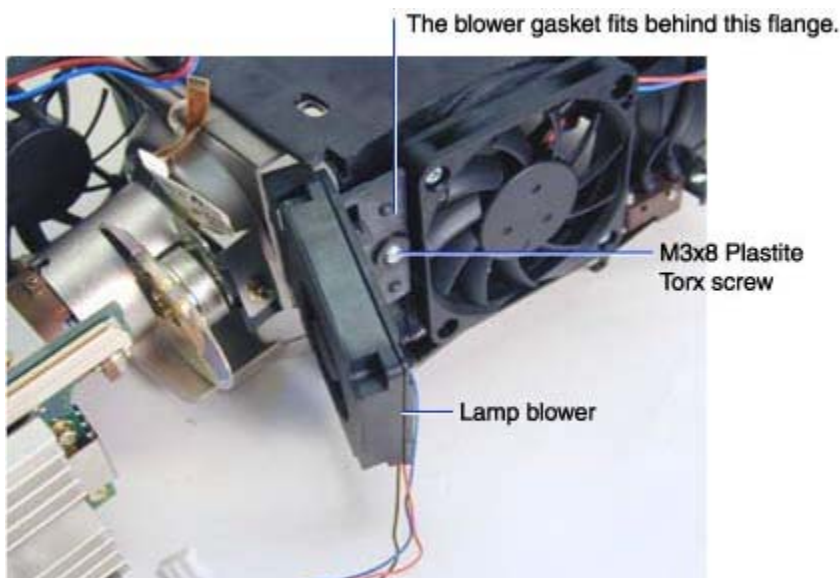
- ◆ Torque the M3x12 Torx Plastite screws to 6 in/lbs (.68 Nm).

## Remove and replace the lamp blower

The **lamp blower** (526-0078-xx) circulates air over the lamp module. It fastens to the back of the lamp housing on the optical engine. The lamp fan is included with a new optical engine, and is also available separately. You can remove the lamp fan without removing the optical engine.

When you replace the lamp blower, you must also adhere a **blower heat shield (329-0337-xx)** to front of the blower. Make sure you replace the blower gasket to its location between the blower and lamp housing.

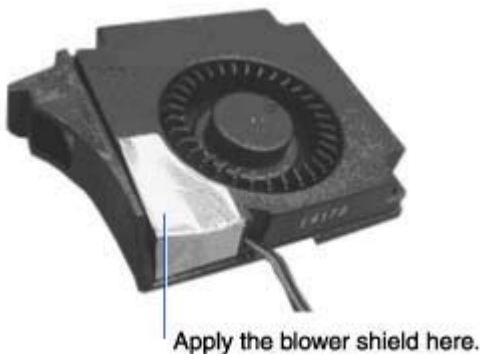
- 1 Remove the chassis and power supply from the bottom case (see page 36).
- 2 Remove the M3x8 Plastite Torx screw that fastens the blower to the lamp housing. Then pull the blower out of the lamp housing. When you remove the blower, you can see the blower gasket beneath the flange through which the screw fastens the blower to the lamp housing.



Make sure the blower gasket remains in position on the lamp housing. The gasket must be in place before installing a new blower.

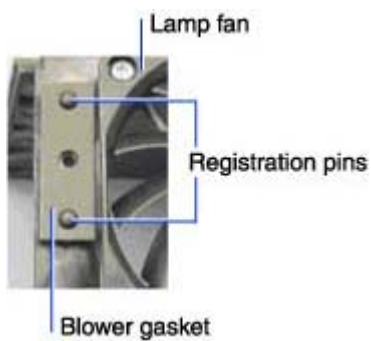
### Assembly Notes

- ◆ Adhere a heat shield (329-0337-xx) to the portion of the fan housing that is inserted into the lamp housing.





- ◆ If necessary, replace the blower gasket on the lamp housing. The blower gasket must be in place before you install the blower.

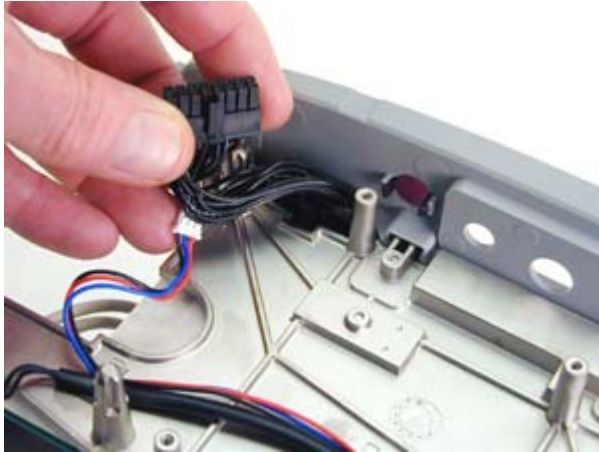


- ◆ Position the blower so that the pointed end is inserted into the lamp housing, and the holes on the mounting tab fit over the registration pins on the lamp housing. Torque the M3x8 Plastite Torx screw to 6 in/lbs (.68 Nm).

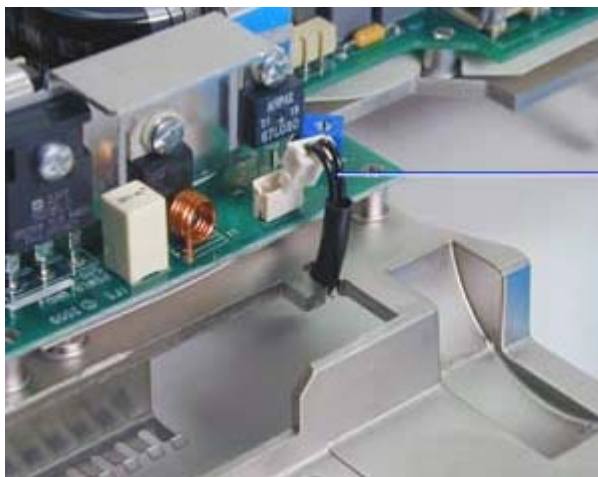
## Remove and replace the power supply

The **power supply** (510-1532-xx) fastens to the metal chassis. It includes both the ballast and low voltage components on one ECA. To remove the power supply, you remove the chassis from the projector, then separate the power supply from the chassis.

- 1 Remove the chassis and power supply from the bottom case (page 36), and place the assembly chassis side up on the work surface.
- 2 Remove the **controller/power supply cable** (211-0161-xx) from its connector on the power supply. Squeeze the latch on the bottom of the connector to release it.

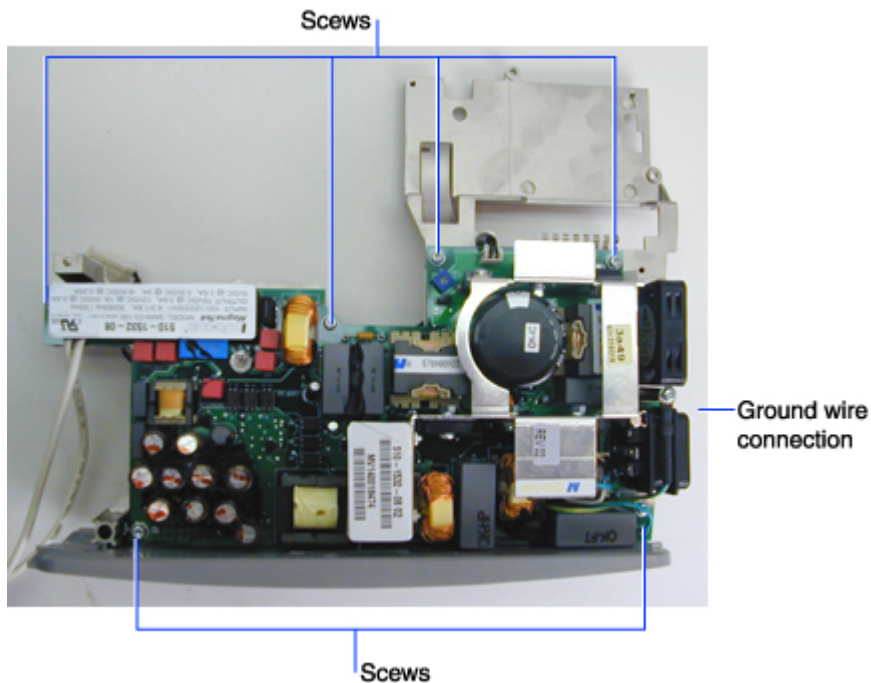


- 3 Turn the chassis over so that the power supply faces upward.
- 4 Unplug the **safety switch cable** (211-0162-xx) from its connector on the power supply.



Safety switch cable

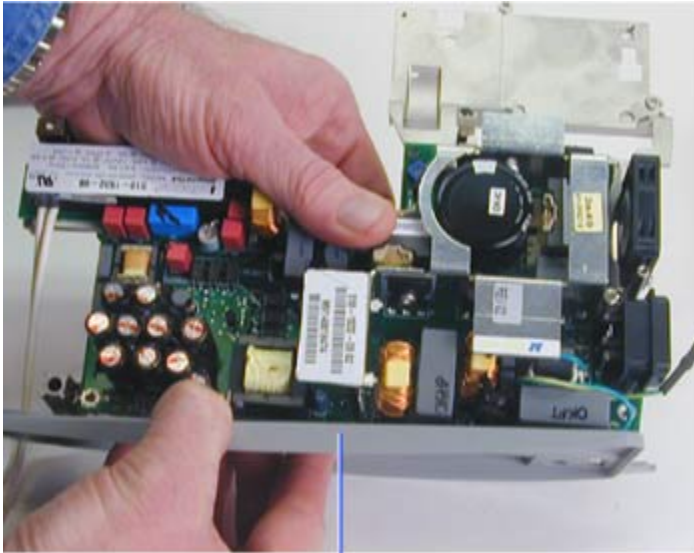
- 5 Remove the six 3x8 Torx screws that fasten the power supply to the chassis. Note that one screw holds a ground wire to the chassis.



- 6 To separate the chassis and power supply, flex the rear bezel outward while lifting the rear of the power supply. A tab in the center of the bezel fits over the power supply ECA. When you flex the bezel, the ECA clears the tab, and you can lift the power supply out of the chassis.

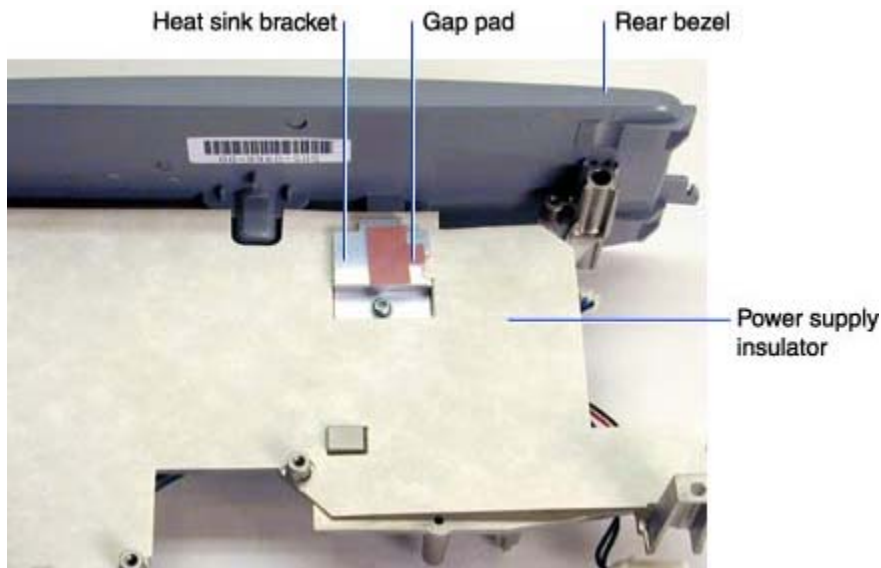


A plastic tab on the center of the rear bezel fits over the power supply ECA.



Flex the rear bezel outward as you lift the rear of the power supply.

Once you remove the power supply, the parts pictured below remain attached to the chassis.



The paper **power supply insulator** (329-0268-xx), the **front gap pad** (329-0302-xx), the **rear gap pad** (329-0301), and the **heat sink bracket** (330-0742-xx) are all replaceable parts. These parts ensure that power supply components do not short out or overheat during projector operation.

All parts **must** be in place **before** the power supply is fastened to the chassis. For removal and replacement instructions, see rear bezel on page 40.

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**NOTE** The gap pad may stick to the bottom of the power supply when you remove it. Make sure you replace the gap pad if it comes off of the chassis.

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**7** Do one of the following:

If you are replacing the power supply with a new one, follow the assembly notes below.

—Or—

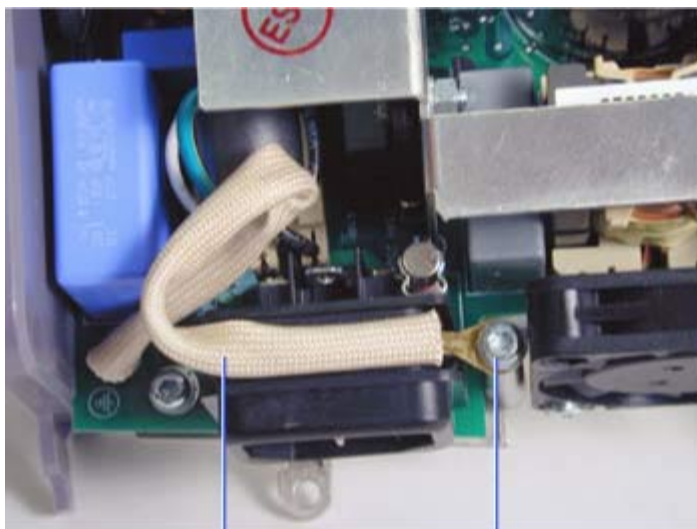
Click the part below that you need to replace.

Rear bezel (see page 40)

Chassis (see page 43)

**Assembly Notes**

- ◆ Make sure the gap pad, the heat sink clip and the paper insulator are in place before you install the power supply. Go to page 40 for more information.
- ◆ Align the power supply with the screw holes on the chassis. Once the power supply is in place, flex the rear bezel outward so that the power supply ECA will clear the tab in the center of the rear bezel. See step 6 above.
- ◆ Torque the six M3x8 Torx screws to 6 in-lbs (.68 Nm). See step 5 above for screw locations.
- ◆ Connect the ground wire to the post near the AC connector. Make sure that you route the wire as shown below.



Note the ground  
wire routing.

Connect the ground wire  
to the post between the AC plug  
and the power supply fan.

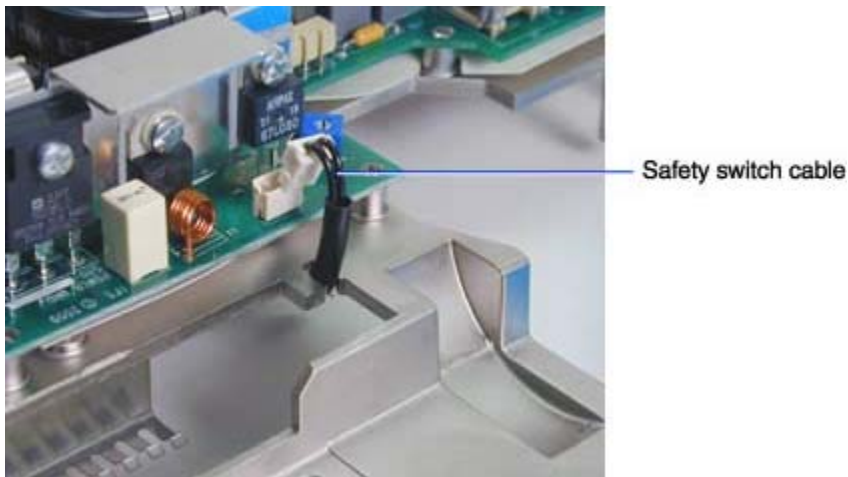
- ◆ Connect the interlock switch cable to its connector on the front of the power supply. See step 4 above.

## Remove and replace the power supply fan and safety switch cable

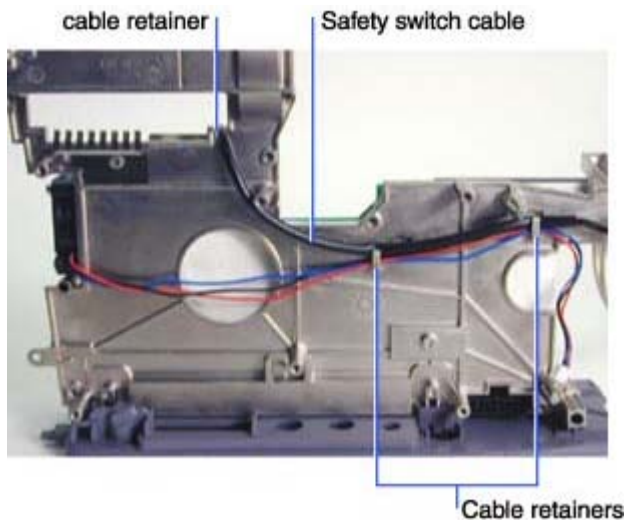
The **power supply fan** (526-0098-xx) fastens to the metal chassis. It faces inward (label side in) so that it blows cool air through the power supply. At the same time you remove the power supply fan cable, you also remove the **safety switch cable** (211-0162-xx), which runs between the power supply and the interlock switch assembly.

To remove and replace the safety switch cable, do the following:

- 1 Remove the chassis and power supply from the bottom case (see page 36).
- 2 Place the chassis on the work surface so that the power supply faces upward.
- 3 Unplug the safety switch cable from its connector on the power supply



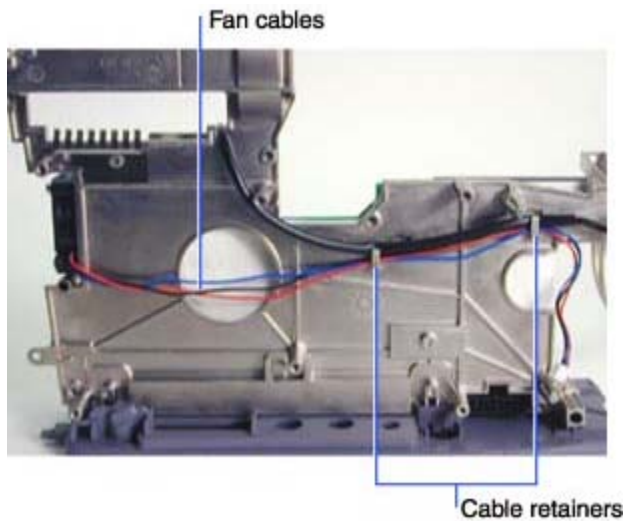
- 4 Turn the chassis and power supply over on the work surface.
- 5 To remove the safety switch cable, lift it out of the three cable retainers on the chassis.



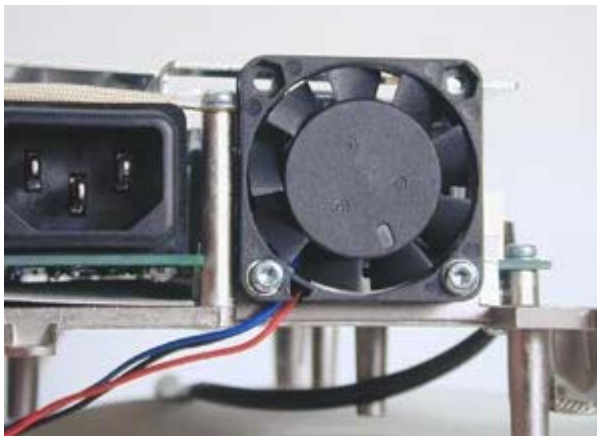


To remove the power supply fan, do the following:

- 1 Remove the fan cable from the two cable retainers on the top of the chassis.



- 2 Turn the chassis over on the work surface so that the power supply faces upward.
- 3 Remove the two M3x10 Torx screws that fasten the fan to the chassis. Then pull the fan off of the chassis.

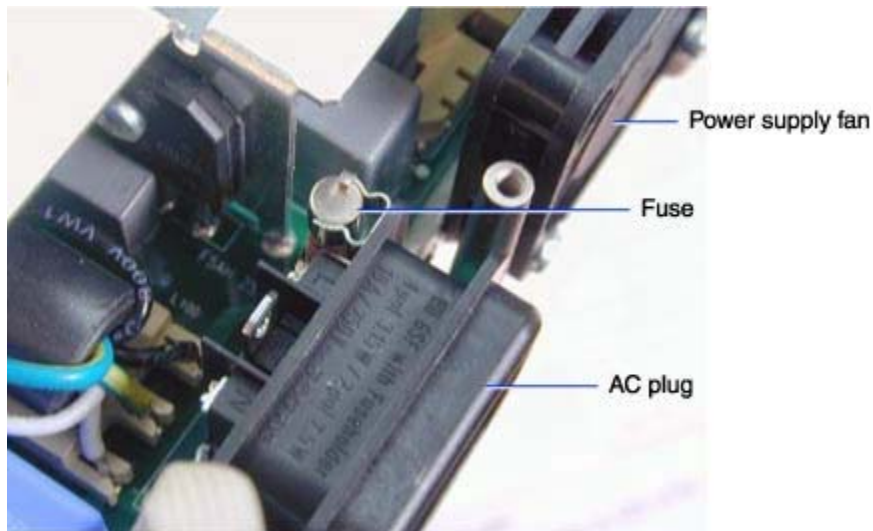


### **Assembly Notes**

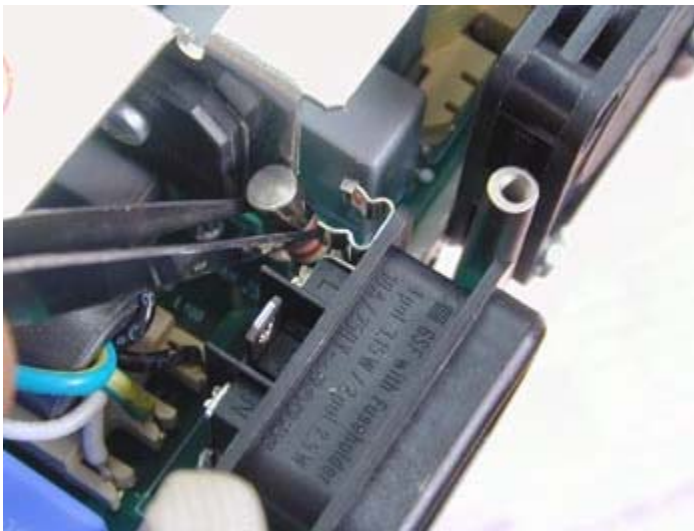
- ◆ Torque the M3x10 screws to 6 in/lbs (.68 Nm). Make sure the fan label faces inward.
- ◆ Make sure to route all the cables through the cable retainers on the top of the chassis.
- ◆ Make sure you leave enough of the safety switch cable exposed on the power supply end so that you do not strain the cable when you plug the connector in.

## Remove and replace the power supply fuse

The **power supply fuse** (749-0026-xx) mounts on the power supply just behind the AC connector on the power supply fan side.



- 1 Remove the chassis and power supply from the bottom case (see page 36).
- 2 Place the chassis on the work surface so that the power supply faces upward.
- 3 Pry the fuse out of its holder with a tweezers or small bladed screwdriver.



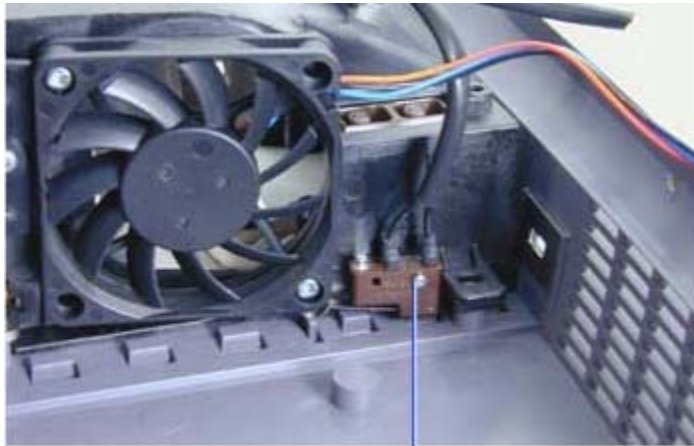
### Assembly Note

- ◆ Make sure that the fuse is fully inserted in the fuse holder. The top of the fuse should rest against the stop on the top of the fuse holder.

## Remove and replace the safety switch assembly

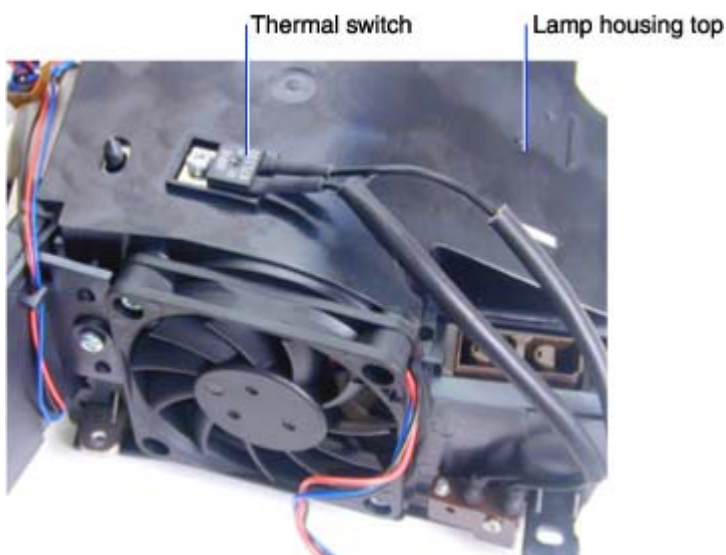
The **safety switch assembly** (526-0080-xx) comprises the interlock switch and the thermal switch. The assembly fastens to the lamp housing. The safety switch cable (211-0162-xx) connects the assembly to the power supply.

- 1 Remove the lamp door (see page 17).
- 2 Remove the chassis and power supply from the bottom case(see page 36).
- 3 Remove the M1.8x 8 Plastite Phillips screw that fastens the interlock switch to the lamp housing. Press firmly as you turn the screw so as not to strip the screw head.



M1.8x8 Plastite Phillips screw

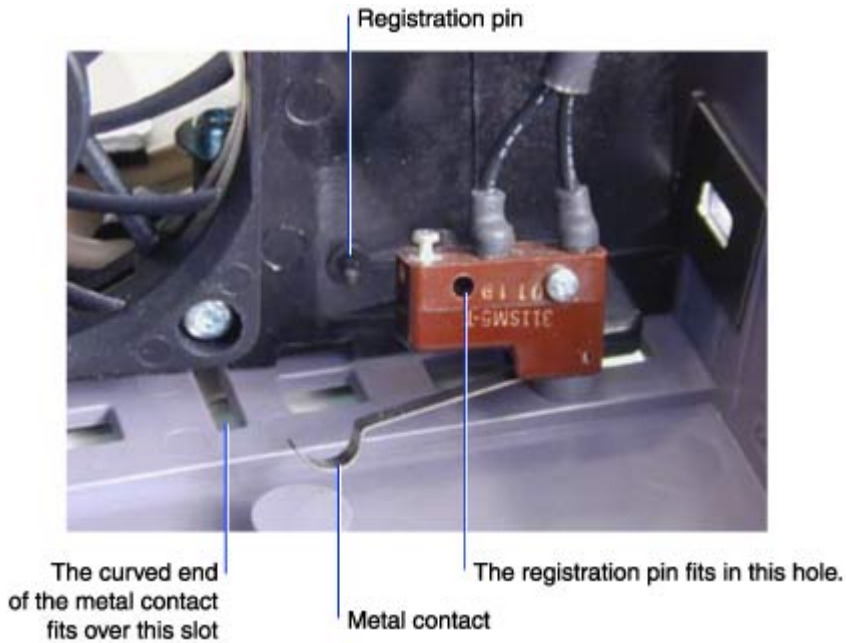
- 4 Use a small bladed screwdriver to remove the clip that fastens the thermal switch to the top of the lamp housing.



The switch assembly can now be removed from the bottom case.

### Assembly Notes

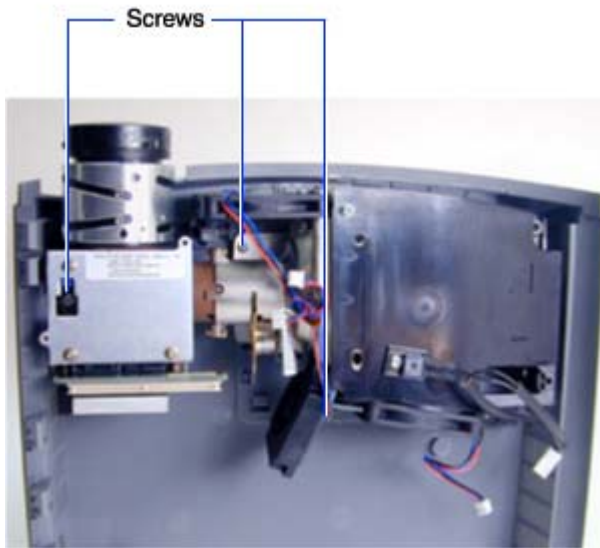
- ◆ To install the interlock switch, orient it so that the registration pin in the lamp housing fits into the empty screw hole in the switch. The curved portion of the metal contact fits into the slot just below the screw on the lamp fan. A tab on the lamp door fits through the slot to close the interlock switch when the lamp door is in place.



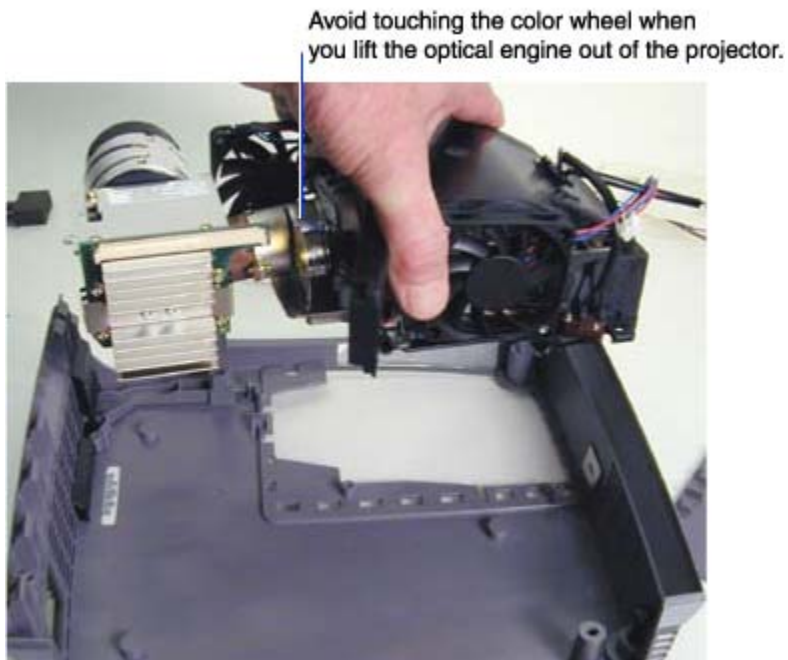
## Remove and replace the optical engine

The **optical engine** (TDP-S3: 505-1181-xx; TDP-T3: 505-1180-xx; TDP-MT5 505-1173-xx) fastens to the bottom case. The engine comprises all parts in the light path, including the lamp housing, three fans, the metal engine, and the projection lens.

- 1 Remove the chassis and power supply from the bottom case (see page 36).
- 2 Remove the three M3x8 Plastite Torx screws that fasten the engine to the bottom case.



- 3 Lift the engine up out of the case. Be sure to grasp the lamp housing and/or the projection lens.



- 4 Place the engine on a static-free surface or in an ESD-protected container.

### ***Assembly Notes***

- ◆ The elevator housing and shaft fit between the front fan and the and the metal light tunnel.
- ◆ Make sure the engine sits flush with the three posts in the bottom case. Torque the three M3x8 Plastite Torx screws to 6 in/lbs (.68 Nm).
- ◆ When installing a new optical engine, apply a piece of **focus ring adhesive** (329-0285-xx) to the front of the lens barrel.



## Remove and replace the bottom case

The **bottom case** (505-0970-xx) encloses the bottom half of the projector. A new bottom case also includes the rubber foot, elevator, leveling foot, light block louver and the engine mount spacer. When you replace a bottom case, you also need to adhere a new **certification label** (TDP-S3: 020-1271-xx; TDP-T3: 020-1165-xx; TDP-MT5: 020-1350-xx).

- 1 Remove the chassis and power supply (page 36) and the optical engine (page 57) from the bottom case.
- 2 Place the chassis on the work surface so the outside faces upward.
- 3 Remove the serial number label. To do this, carefully use a heat gun or hair drier to soften the adhesive on the back of the label, then peel it off. Do not lose the serial number. It is not a replaceable part.



### Assembly Note

- ◆ Adhere a new certification label to the bottom case. Then adhere the original serial number label in the box near the leveling foot.

# Software

## Downloading software to your computer

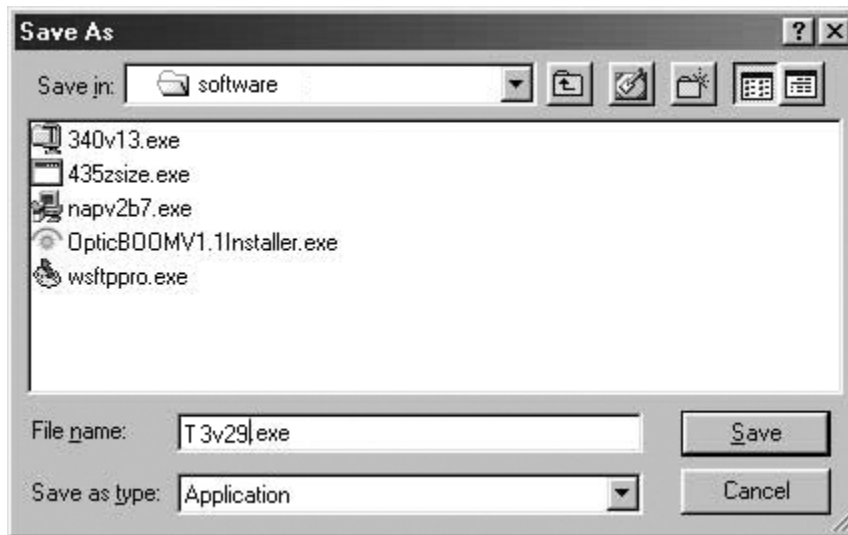
When you click the Download Now button , the File Download dialog box appears.

**NOTE** The illustrations below refer to version 2.0 of the TDP-T3 system software. The version of the software you download may be different.

- 1 In the File Download box, select Save This Program To Disk option, then click OK.



- 2 In the Save As dialog box, navigate to the folder in which you want to store the file, then click OK.



The file downloads to your computer's hard drive. Now you're ready to install the software on the computer. You can also transfer the file to a floppy disk to use on other computers.

## Install the Software on the Computer

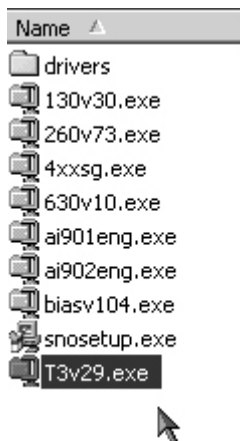
The software you download is bundled into one .EXE file. You open the .EXE file and install the upgrade software on the computer you plan to use to flash the projector.

The .EXE file is made of two other .EXE files. One contains the software upgrade files. The other contains the Upgrade Utility.

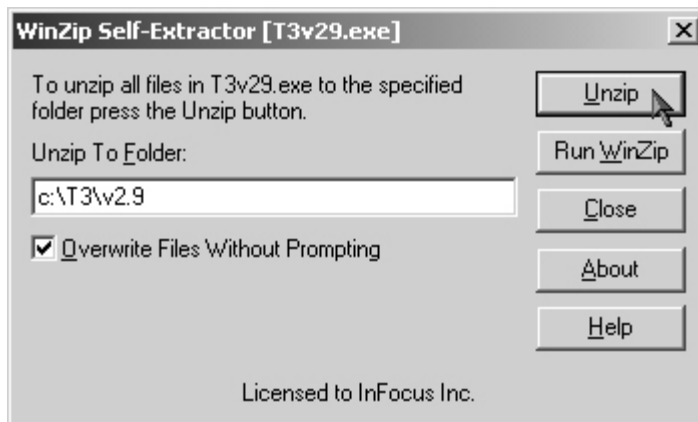
- 1 Open Windows Explorer on your computer.

To do this, click the *Start* button, point to *Programs*, then click *Windows Explorer*.

- 2 In Windows Explorer, locate the .EXE file that contains the upgrade files. Double-click the file to extract the contents.



- 3 The filename T3v29.exe means that this is version 2.9 of the system software for the TDP-T3. The version number changes each time the software is updated.
- 4 The WinZip Self-Extractor dialog box appears.



- 5 Leave the folder choice as c:\T3\v2.9. Click *Unzip*. WinZip extracts the files to c:\T3\v2.9

---

**NOTE** If you can't find the file, use the Windows Find feature to locate the file. On the Tools menu, point to Find, then click Files or Folders. In the Find dialog box, enter the name of the file (for example, *T3v29.exe*).

---

- 6 Click OK in the message box that appears, then click *Close*.

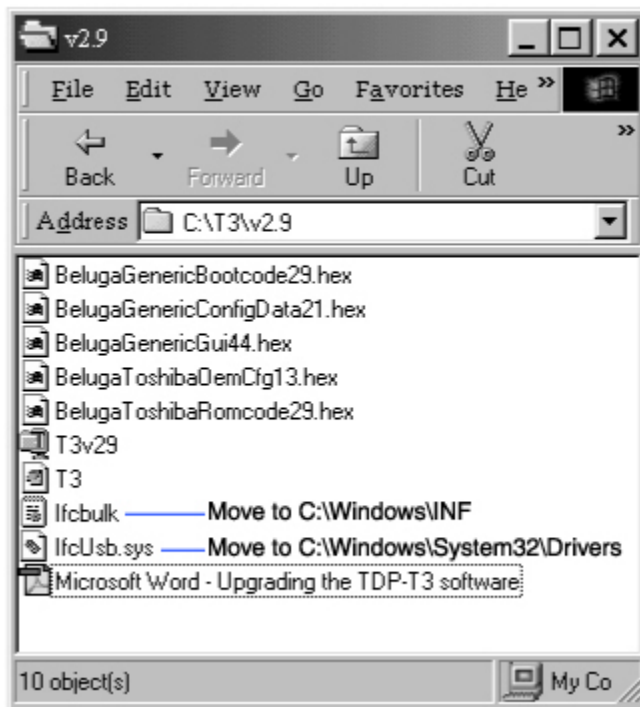
---

**NOTE** Follow steps five through seven if you are using **Windows 98**. If you are using a computer that runs on **Windows 2000**, steps five through seven are not necessary.

---

- 7 In Windows Explorer, navigate to the folder C:\T3\v2.9 (or the directory in which you saved the file, if different).

- 8 Move the following files:
- ◆ Place **IFCBULK** in C:\Windows\INF
  - ◆ Place **ifcUsb.sys** in C:\Windows\System32\Driver



- 9 Restart your computer.

Now you're ready to upgrade the software in the projector.

## Upgrading the software

To upgrade the software, you need the M1-A cable (210-0185-xx) that ships with the projector. You also need to download the software (page 60) and install the software on your computer (page 61).

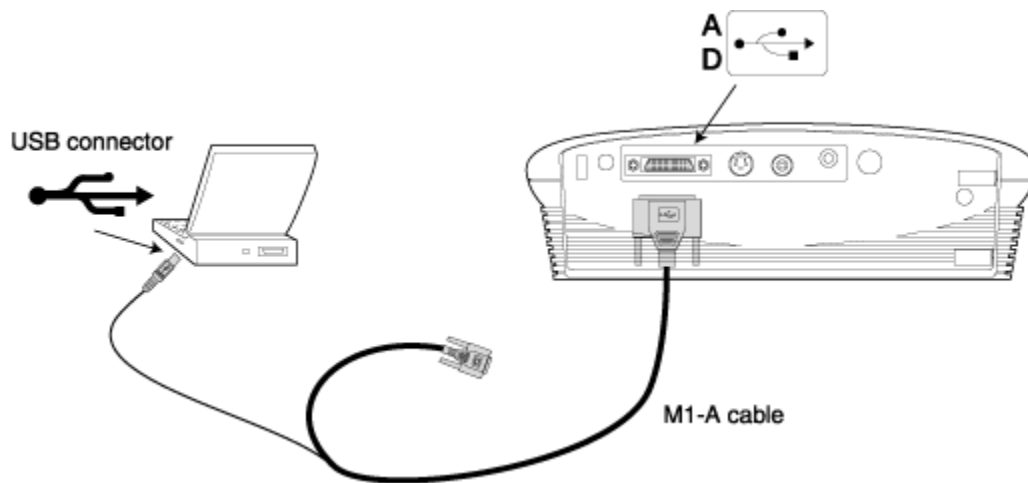
---

**Special Note** Before you begin the software upgrade process, make sure that you have properly loaded into your computer the system software and drivers included in the software you downloaded from the Toshiba web site. Otherwise the upgrade will not work.

---

### **Connect the projector to the computer with the M1-A cable**

- 1 Plug the M1-A cable into the projector and computer as shown in the illustration below. You don't need to plug in the monitor cable.



- 2 Plug the power cord into the projector and into a power source.

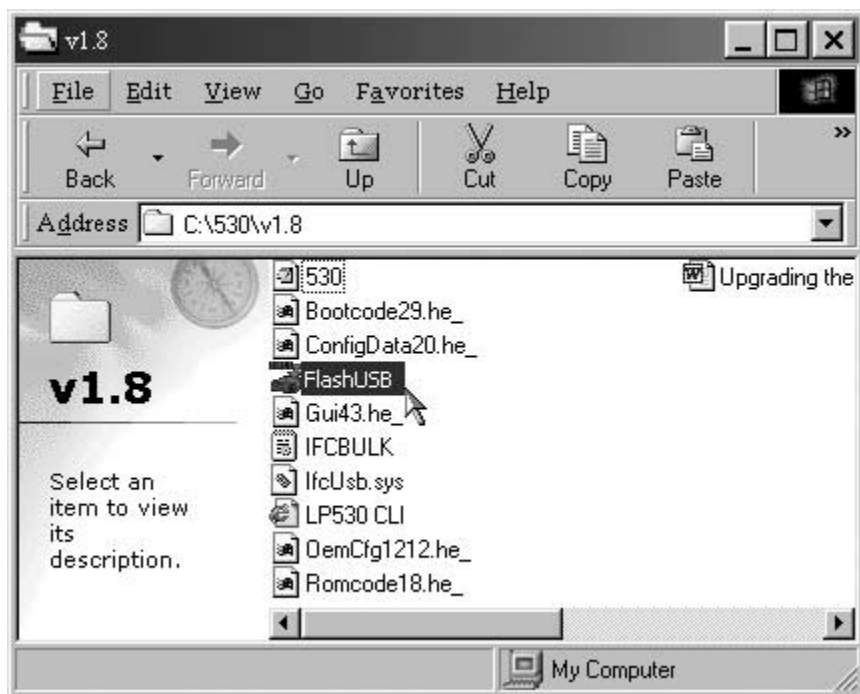
---

**NOTE** The instructions below apply to both the TDP-S3, the TDP-T3 and the TDP-MT5. The TDP-T3 is referenced in the examples, but they apply to the TDP-S3 Mt-5 as well. The only difference is that the three projectors use different software.

---

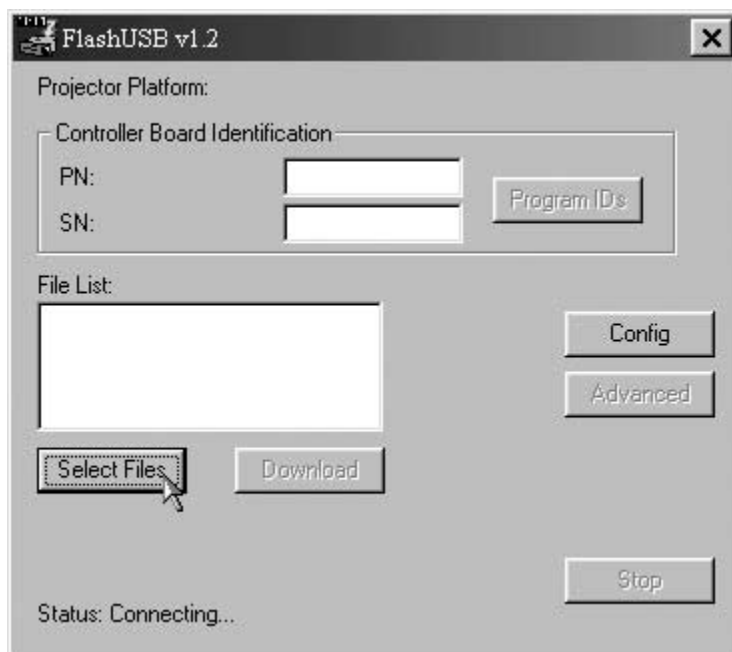
- 3 Open Windows Explorer, navigate to the batch file, then double-click the FlashUSB utility.





The FlashUSB dialog box opens, ready to begin the upgrade process.

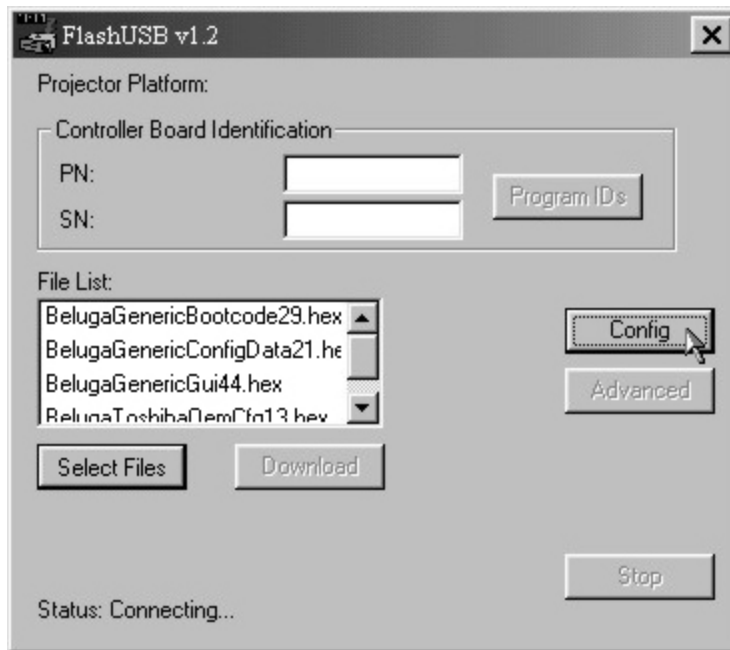
- 4 Click the Select Files button in the FlashUSB dialog box.



- 5 In the Open dialog box, select the file named **T3** or **T3.dld**, then click Open.

The upgrade files appear in the File List box, and the Status indicator at the bottom of the dialog box reads *Connecting....* This tells you that the computer is attempting to establish a connection with the projector.

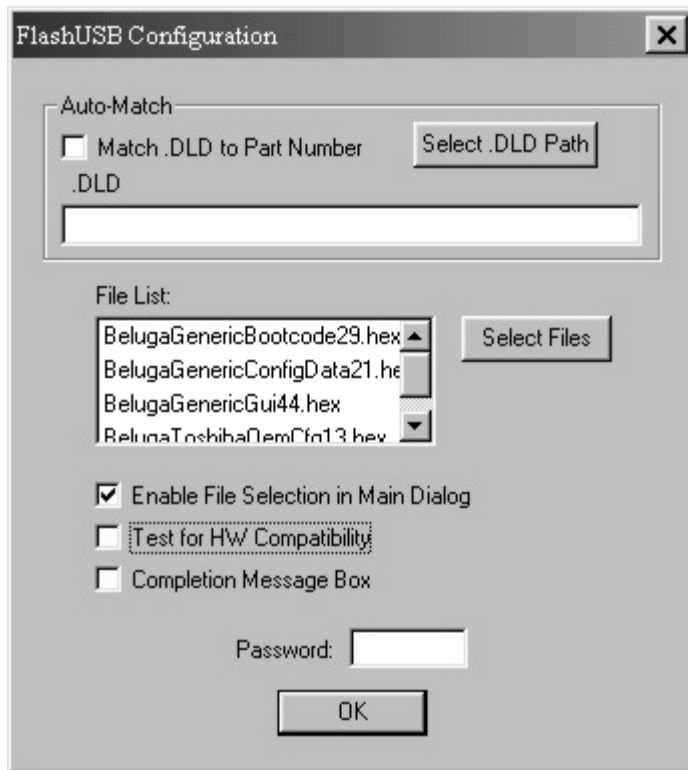
- 6 Click the Config button.



The FlashUSB Configuration dialog box opens.

- 7 In the FlashUSB Configuration dialog box, **clear the Test For HW Compatibility check box**, then click OK.

If this check box is not cleared, the software upgrade will not work.



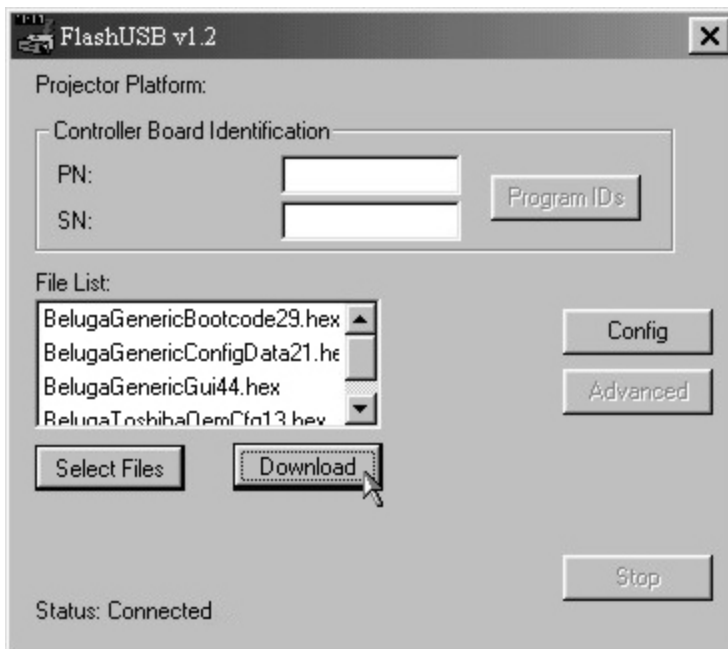
- 8 Plug the power cord into the projector. The green LED should light.
- 9 On the TDP-T3 keypad, press the green power button, then **immediately** press and hold the **volume –** and the **source** buttons.

The projector should go to 'load state', where the fans are running and the green LED glows, but the lamp does not light.

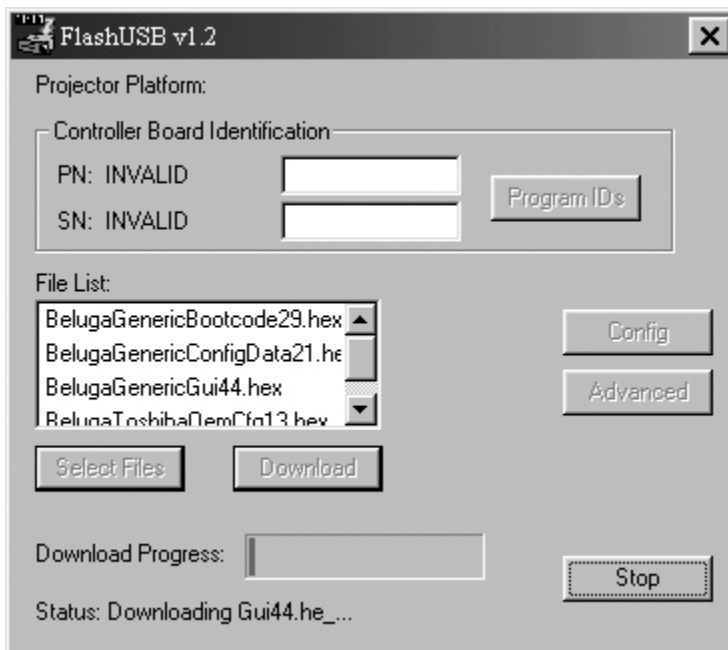
In the FlashUSB v1.2 dialog box, The *Status: Connecting...* message changes to *Status: Connected*. The **Download button** becomes available.

The Status indicator now says *Connected...*, telling you that the computer is communicating with the projector.

- 10 Click the Download button.



The software begins downloading to the projector. The process may take several minutes.

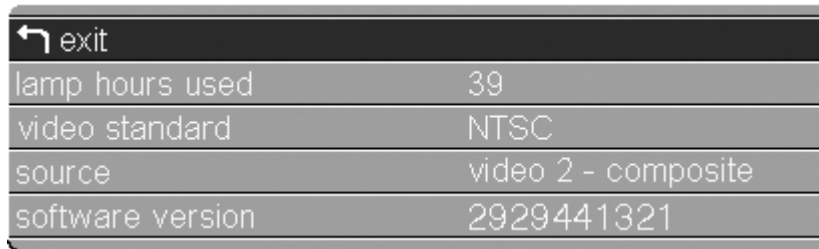


When the download is complete, the FlashUSB dialog box closes, and the projector lamp lights. The Toshiba splash screen appears.

### Confirm the software upgrade

- 1 On the projector keypad, press the **menu/select** button to display the menus
- 2 Press the **volume +** button until the Status window opens.

The new software version number appears in the Status window.



↩ exit	
lamp hours used	39
video standard	NTSC
source	video 2 - composite
software version	2929441321

Here is how to interpret the version number in the example above. The version number is really a list of the HEX files version numbers.

In the illustration above:

**29** = boot code v2.9

**29** = ROM code v2.9

**44** = GUI code v4.4

**13** = data configuration v1.3

**21** = EDID version 2.1

The version number you see should match the series of version numbers for each HEX file in the file you downloaded from the Toshiba web site.

# Functional Tests

You perform the functional tests after you've repaired the projector to make sure all components of the projector operate properly. You can also perform the functional tests if you're having trouble determining what is wrong with the projector. For additional help in diagnosing trouble with the projector, see Troubleshooting on page 74.

## Required equipment

Equipment	Notes
Composite video DVD player with S-video capability	Make sure the video player has an S-video Out port and cables. The player should also have a Composite video output port (RCA). <b>Toshiba strongly suggests you use a DVD player to test the video quality.</b> DVD players reproduce colors better and project sharper images. The least preferable is a VCR. If you must use a VCR, make sure you use a commercially produced recording, not one recorded from a broadcast source. The VCR must include an S-video connector in addition to a composite connector.
Commercially produced video to test S-video, composite video, and audio.	You'll need the video in DVD, laser disc, or video cassette format. Toshiba strongly suggests you use <i>Video Essentials, Optimizing Your Audio/Video System</i> (DVD International, 1997).
Audio & Video cables	Use the cables that come with the projector, including the Digital Video Interface (DVI) cable.
Computer cables	M1-A and M1-DA cables for both analog and digital playback.
RGB test screens in a PowerPoint presentation	We recommend that you use the Test Patterns available on the Toshiba website to check image quality.
PC with digital video and sound card	Make sure the card has an M1 Digital Video Interface (DVI) output port. The stereo audio card should have either a 3.5mm stereo audio jack or RCA left and right output ports. The computer must have a CD-ROM and a standard VESA connector for analog output.
Remote control	Ensure that the remote has fresh AA batteries.
Projection screen	Use a flat screen, not a curved one.

## Before beginning

Make sure the work surface where you perform the functional tests is level and clean. Place the projector on a soft surface (such as an anti-static mat) when running the tests.

Connect the following to the I/O panel on the projector:

- ◆ Video player through Composite Video and S-video ports



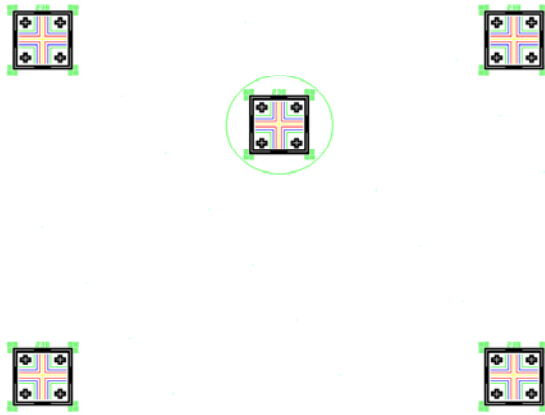
- ◆ Computer through M1A cable

Perform the following tests

Part Name	Part Number
<b>Power Up</b> Connect AC power, and turn the unit on.	Verify that the proper splash (logo) screen appears. Verify image quality.
<b>Cosmetics and mechanicals</b> Adjust the projector so that the image is square. Make sure the lens is at a 90° angle to the wall.	Verify that the elevator and leveling foot are functional. Verify that the focus and zoom rings operate properly. Verify cosmetics.
<b>Composite video from video source</b> On the keypad, press the Video button.	Verify that the video automatically synchronizes. Verify there is no distortion, noise or other abnormalities.
<b>S-Video from video source</b> Connect the S-VIDEO cable to the projector. Disconnect Yellow composite (RCA) video connector.	Verify that the video automatically synchronizes. Verify there is no distortion, noise or other video abnormalities.
<b>Software Version / Standby / Reset All</b> Press the Menu button. Navigate to the Status menu. Check the software version. Navigate to the Display menu. Select Reset All. Press the Standby button on the keypad.	Verify software version.  Verify the keys are not sticky.  Verify unit goes in and out of standby mode.
The next step is to observe 3 computer images. These will confirm that the computer input works properly, and will test image quality. Press the <b>Computer</b> button on the keypad.	Verify that the images project synchronize properly through both of the following inputs: M1 Analog M1 Digital

### Image #1: Focus Test Image

1. Turn off any local light.
2. Turn the **zoom ring** to make the smallest image.
3. Focus the image so the middle icon is clearly focused.
4. Focus the image on the 4 green squares.
5. After focusing on the green squares on the middle icon, turn the **zoom ring** to make the largest image, then repeat the focus tests.



Verify that all four corner icons have clear resolution

Verify that the white space is visible on all 5 bar/line icon areas (between green).

Verify that the image focuses through the full zoom range.

Verify that the image remains in focus when the Image Shift knob is turned.

### Image #2: Color Ramp

Project the Color Ramp image.



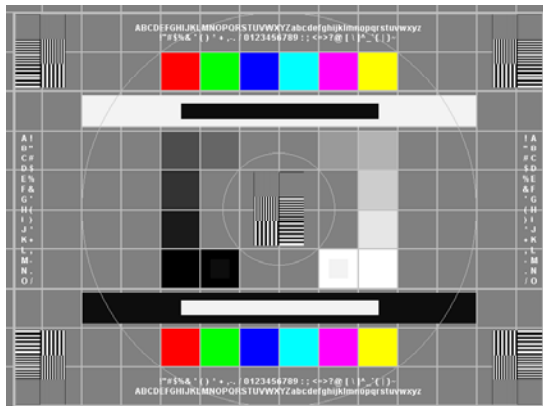
Verify there are no missing parts of the ramp.

Verify that the bars are not flashing.

Verify that the transitions from light to dark are smooth and gradual.

### Image #4: SMPTE133

Project the SMPTE133 image.



Verify that there are no noise, tint, duplicating columns, or other general image abnormalities present

On the keypad, press <b>Menu</b> . On the <b>Display menu</b> , select <b>Reset All</b> .	Verify that the image synchronizes.
<b>Expansion module</b>	<a href="#">Click here for module functional tests</a>
<b>Power Down</b> After all tests are complete turn the power off and disconnect all cables. Attach the lens cap.	Verify unit is powered off before disconnecting cables.

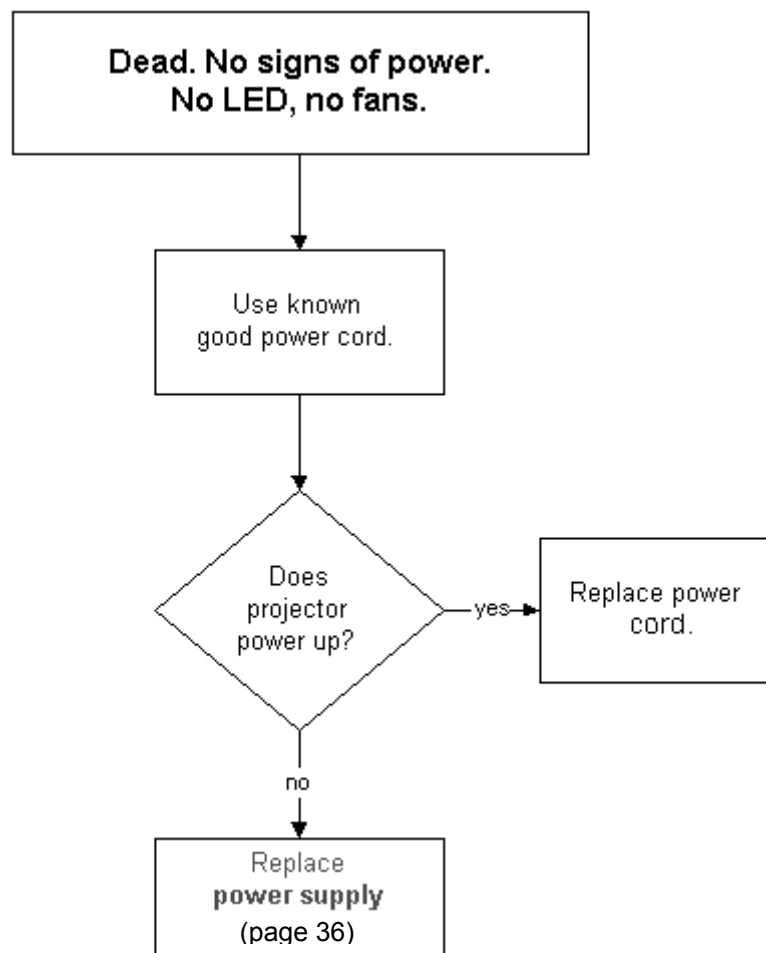
# Troubleshooting

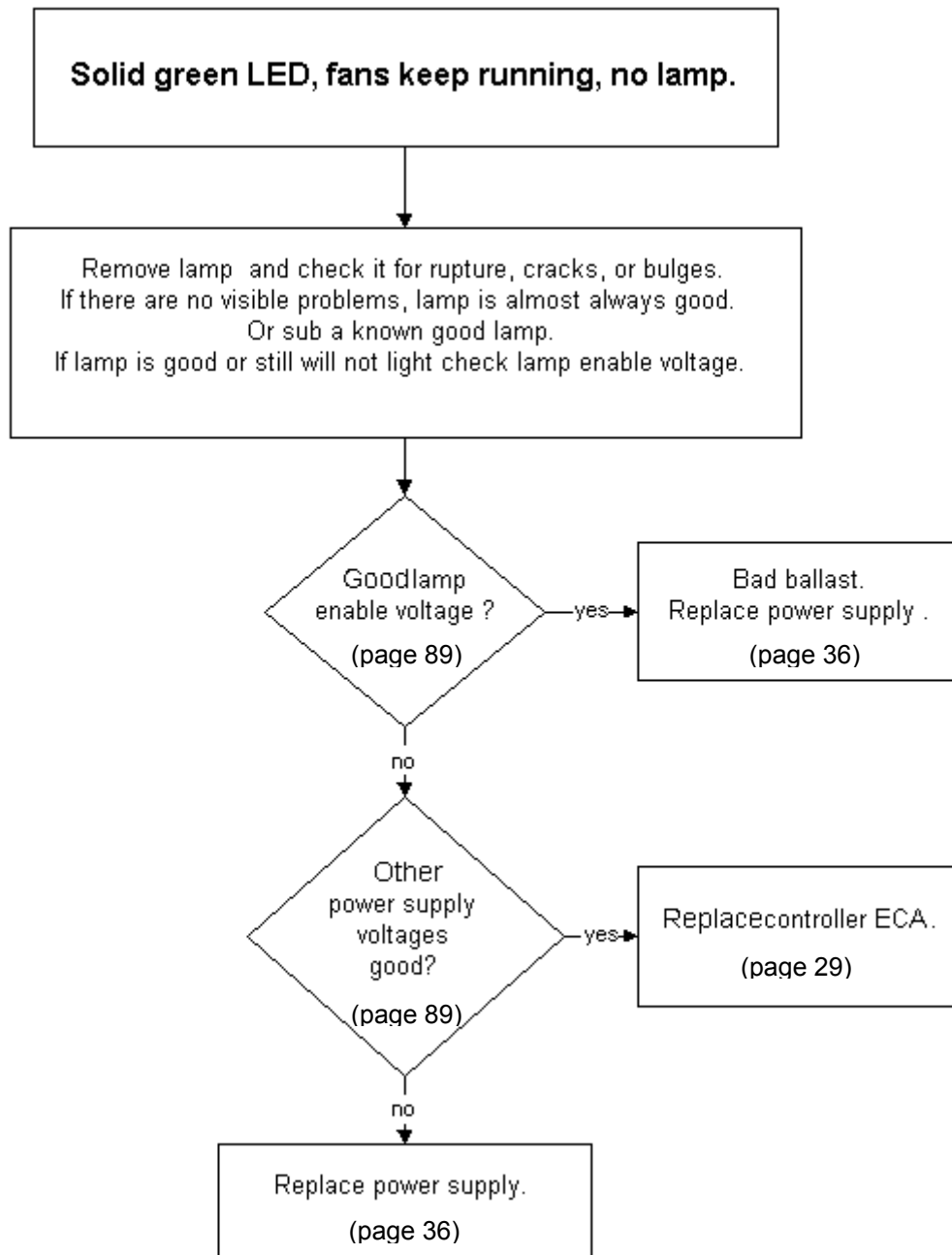
You use this section to diagnose problems the TDP-S3, TDP-T3 and TDP-MT5 projectors.

In addition to the troubleshooting trees on the following pages, you will also find the following items:

- ◆ Block diagram (page 88)
- ◆ How to power up the projector with the top off to check fan operation and voltages (page 89)
- ◆ Controller voltage check points (page 89)
- ◆ How to check and reseal the color wheel cable (page 94)
- ◆ How to check thermal switch operation (page 93)

## Troubleshooting Power Problems





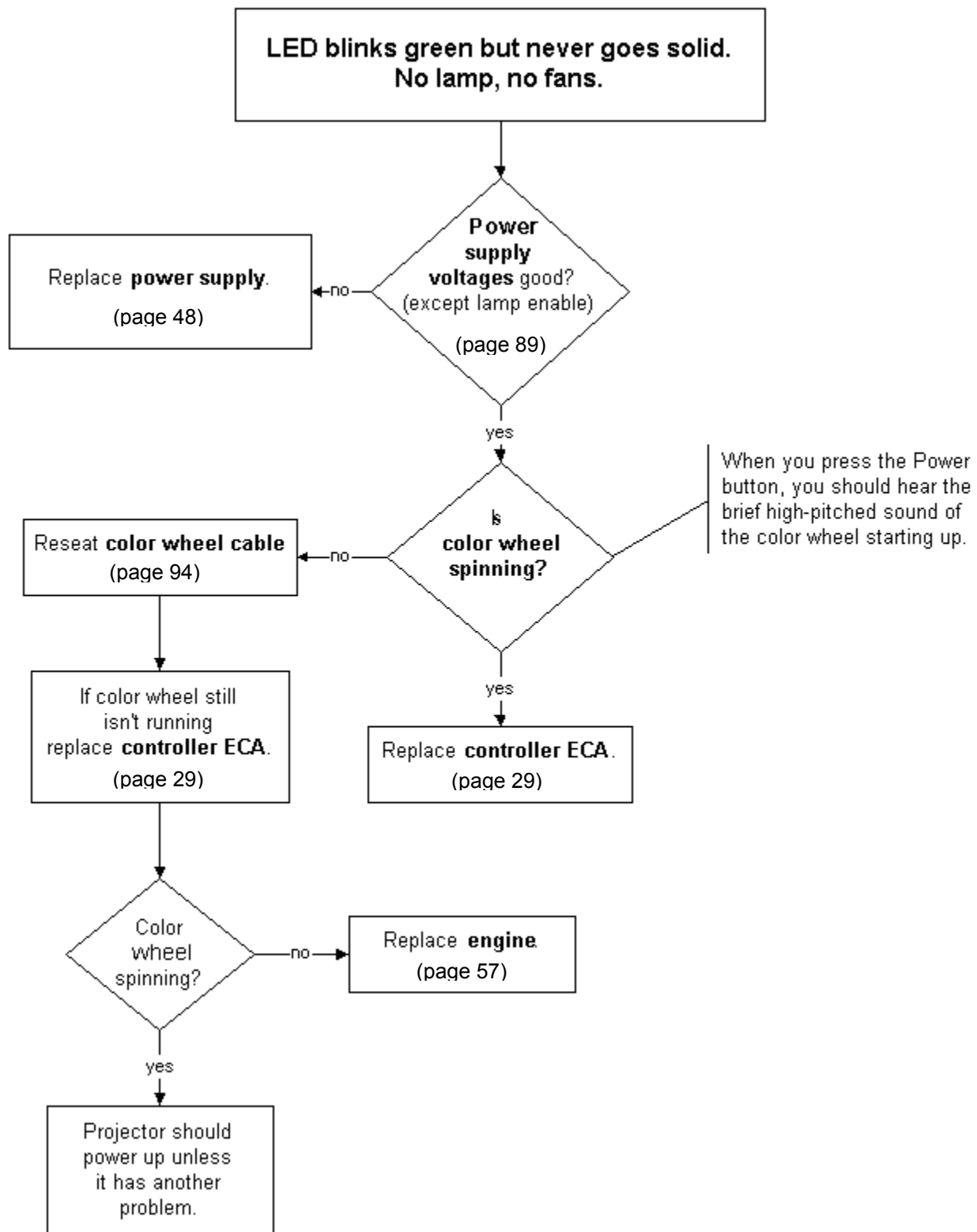


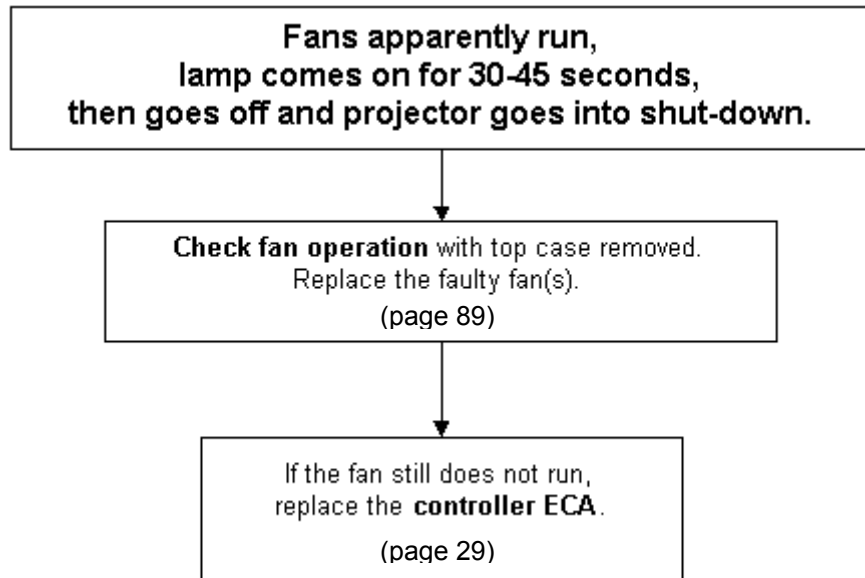
Fans come on, color wheel starts up, lamp does not come on,  
color wheel dies down.  
This pattern repeats 4 times and projector goes into shutdown.

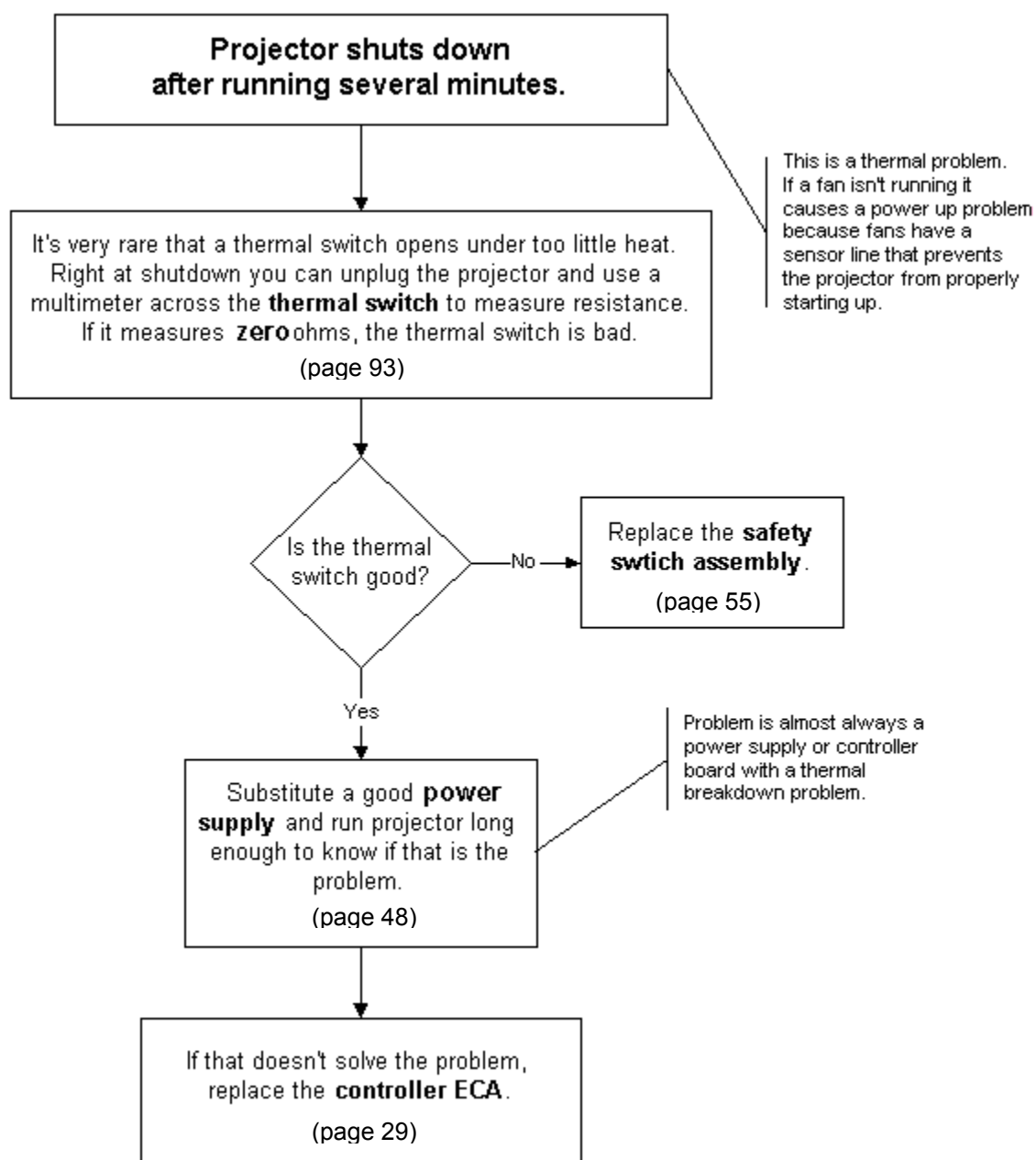
Make sure the lamp  
door is shut  
(page 17)

Make sure the safety  
switch cable is connected  
at both ends.  
(page 52)

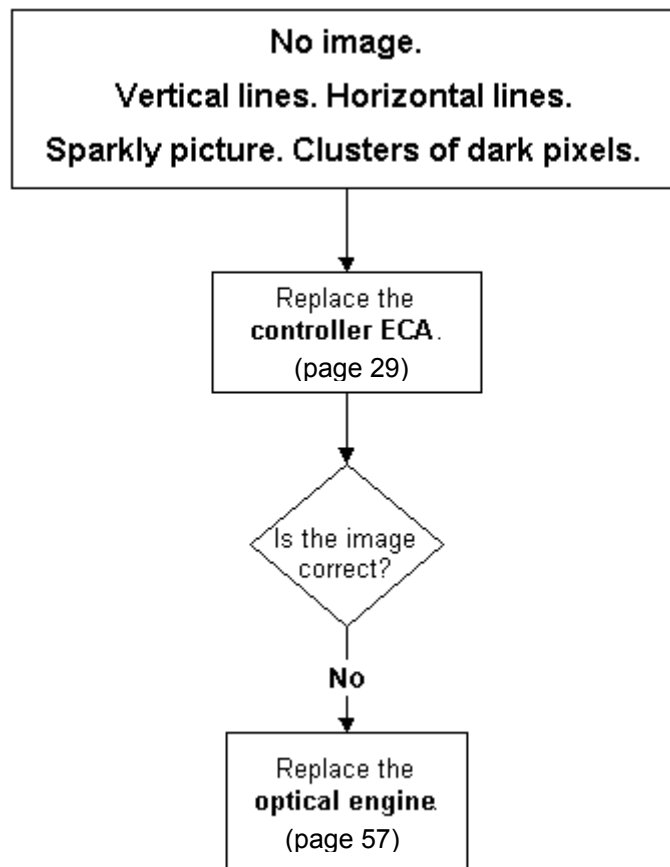
Replace the safety  
switch assembly.  
(page 55)

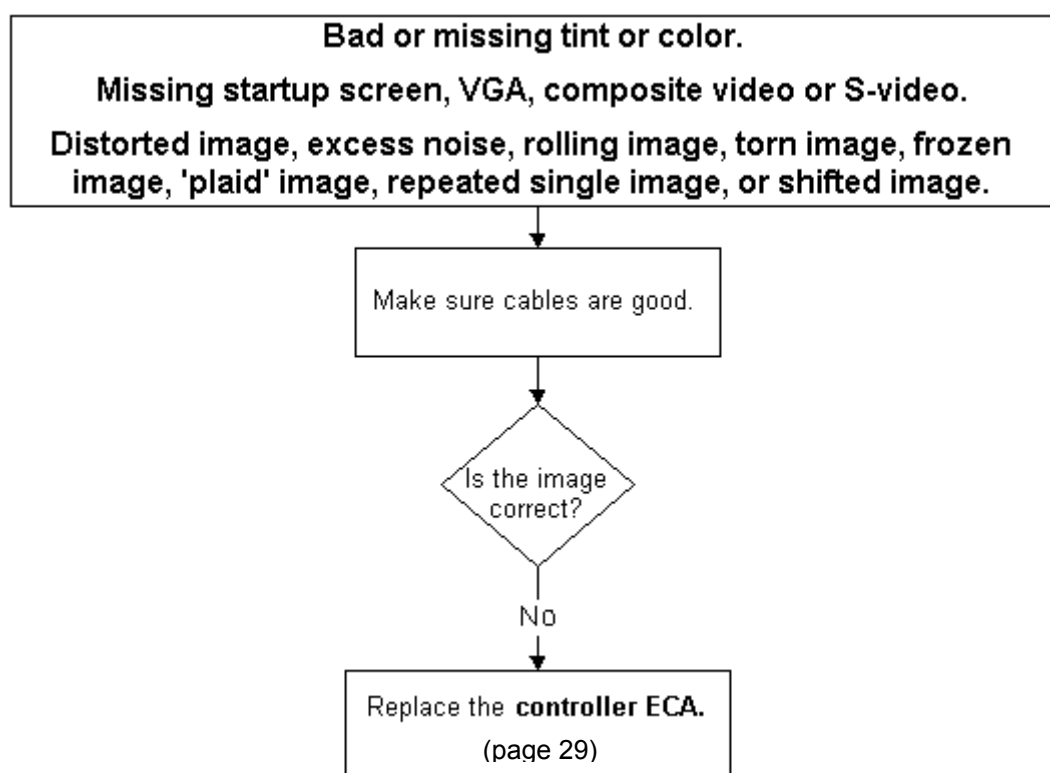




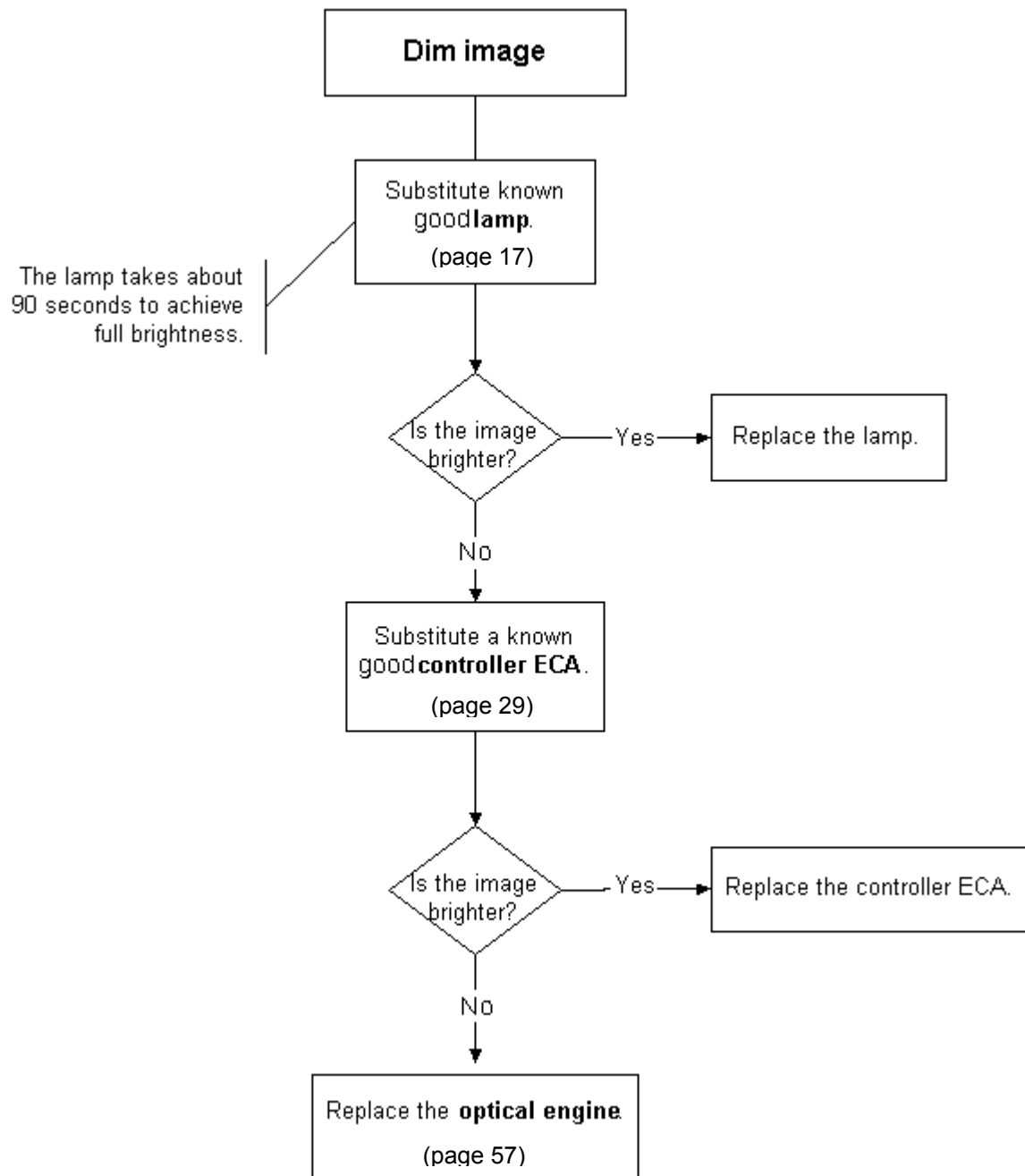


## Troubleshooting Image Problems

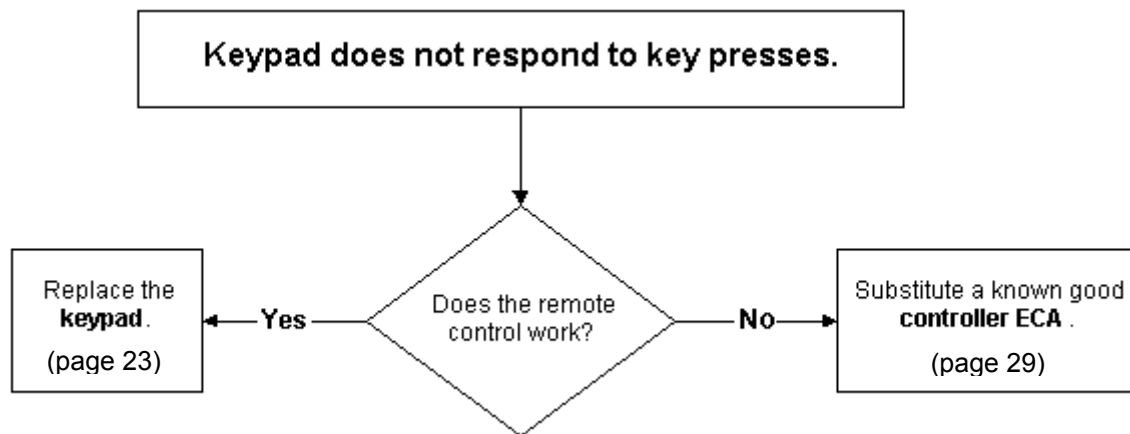




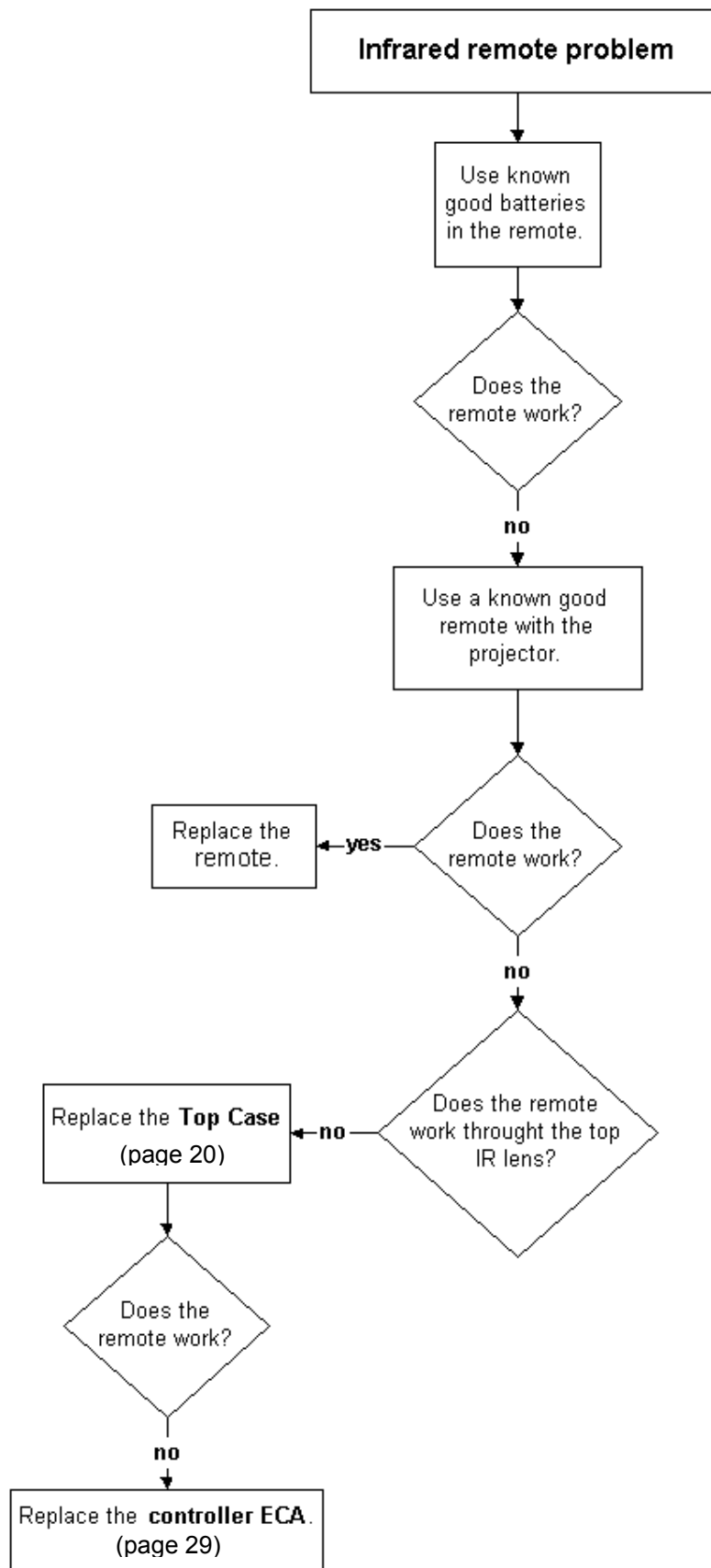




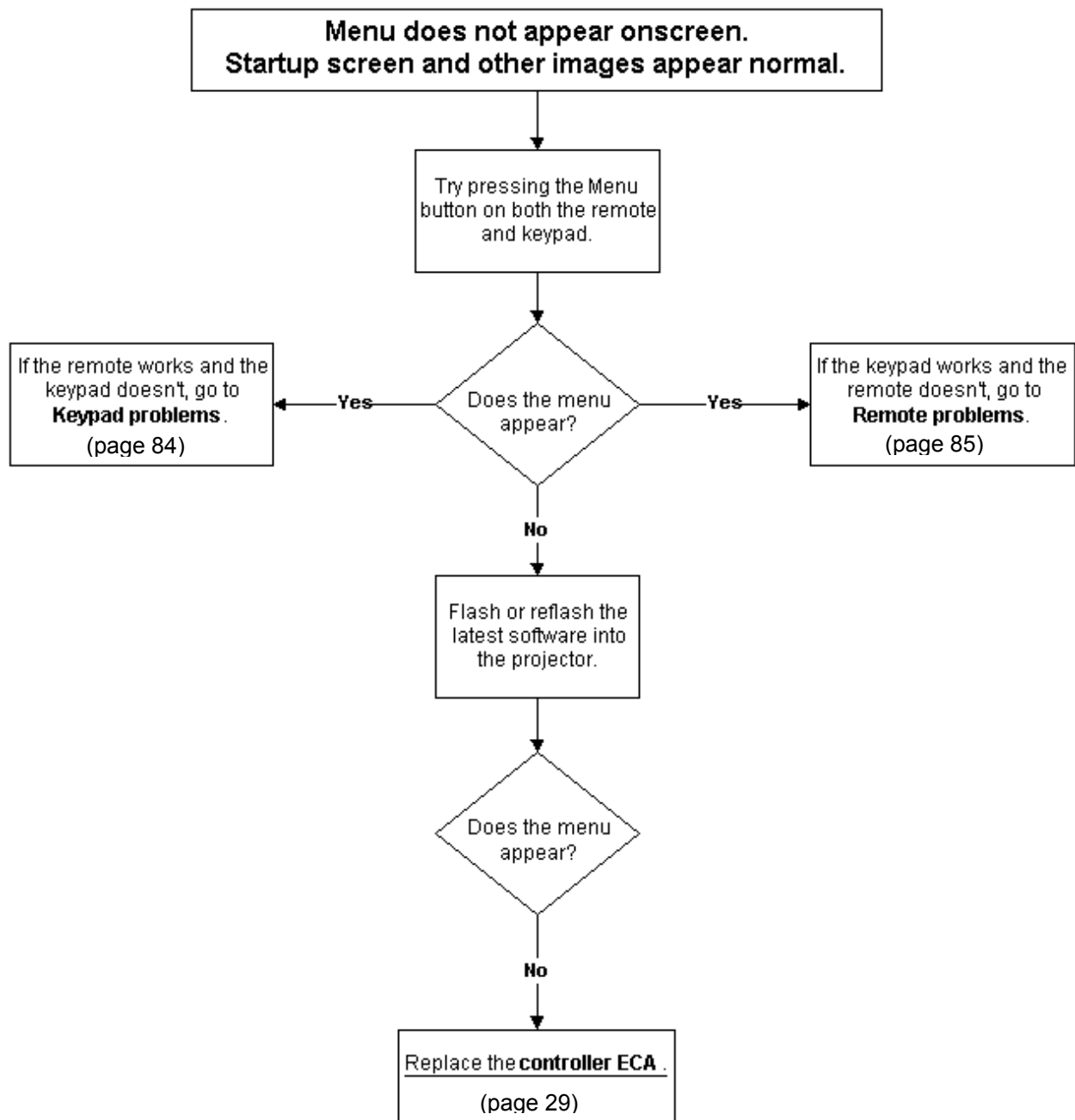
## Troubleshooting Keypad Problems



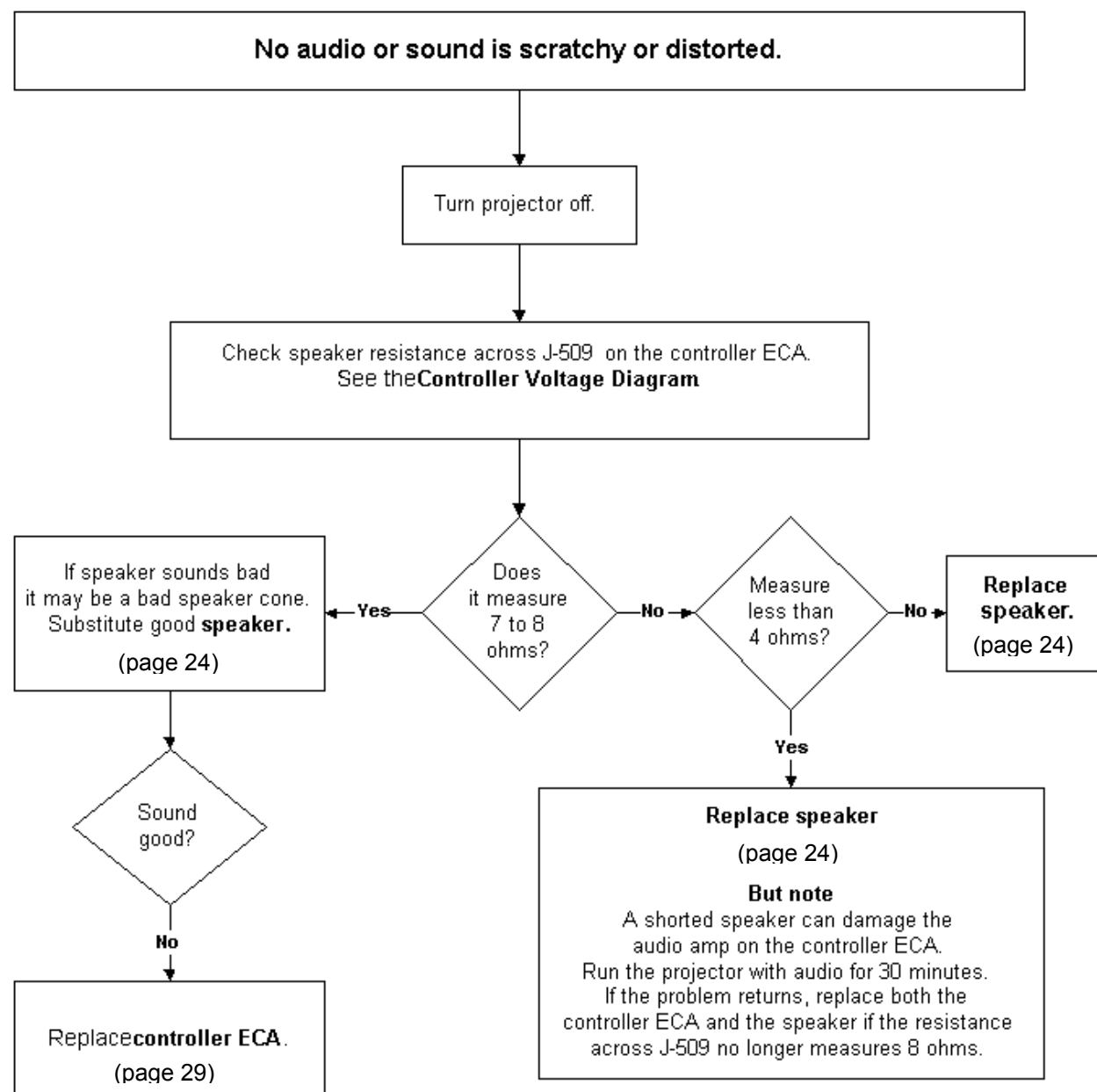
## Troubleshooting Remote Problems



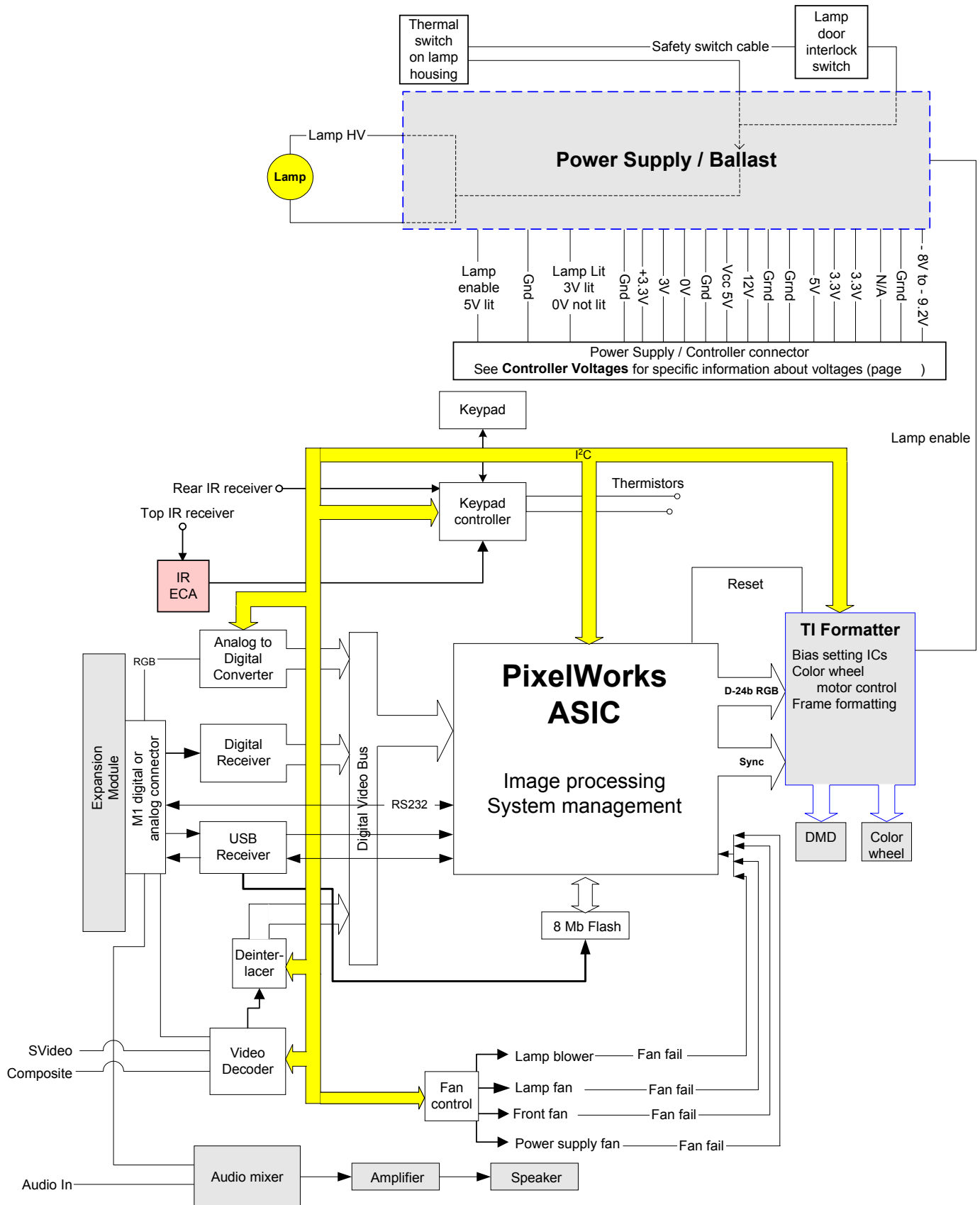
## Troubleshooting Menu Problems



## Troubleshooting Audio Problems

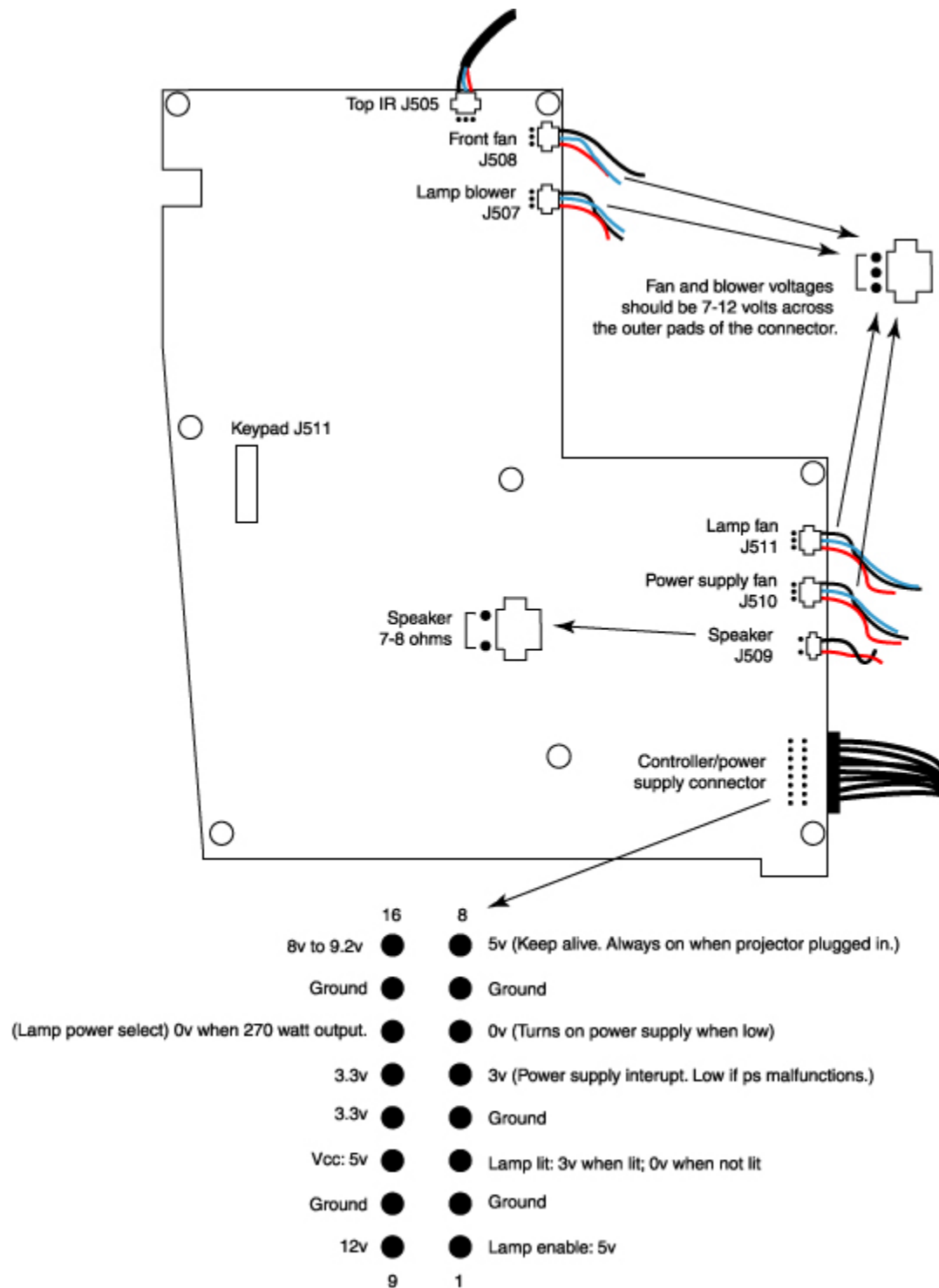


## Block Diagram





## Check controller voltages



## Power up with top case removed to check fans and voltages

You can check the three fans and the lamp blower by removing only the top case and front bezel/bezel vent. Once these parts are removed, you can power up the projector and verify whether each fan/blower operates.

While the top case is removed, you can also check voltages on the fans and on the power supply/controller connector.

- 1 Remove the following parts:

Top case (see page 20)

Front bezel and Front Bezel Vent (see page 13)

---

**NOTE** The lamp and the lamp door must be in place to start the projector with the top case removed.

---

- 2 Use a compatible remote control to power up the projector. To do this, point the remote at the rear of the projector and press Power.

If you do not have a remote, go to page 98 to see how to power up the projector with the keypad.

---

**CAUTION** When you power the projector up, there is voltage present on the controller ECA and power supply. Be very careful where you probe and where you touch.

---

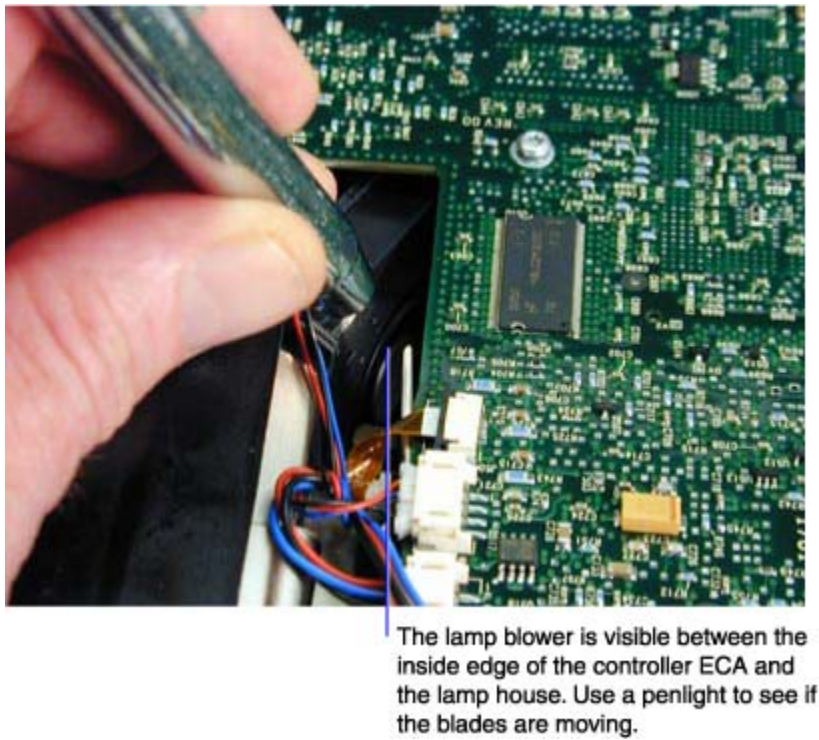
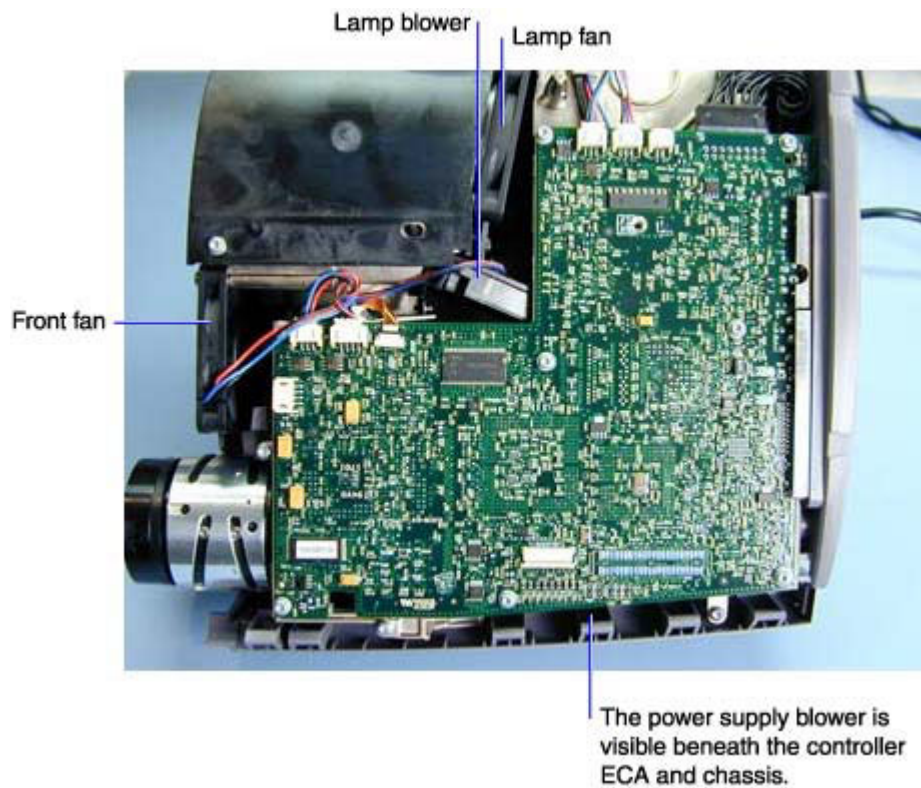
- 3 Do one or all of the following:

Check controller ECA voltages (see page 89).

Check the thermal switch (see page 93).

Follow the directions below to check fan and blower operation.

The three fans and the lamp blower should all start up when the Lamp button is pressed. See the illustrations below for the fan and blower locations.



---

**CAUTION** When powering up the projector with the top case removed, do not look directly at the lamp module.

---

- 4 To verify that a fan or blower is bad, unplug the connector for the suspect unit, then plug in a known good fan or blower.
- 5 Click one of the following for fan replacement directions:

Front fan (see page 24)

Power supply fan (see page 52)

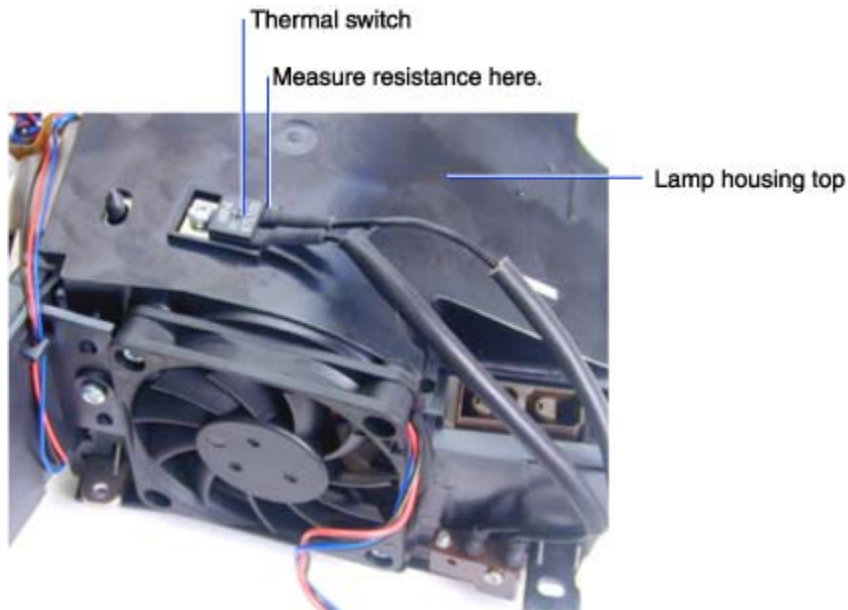
Lamp fan (see page 44)

Lamp blower (see page 46)

## Check the thermal switch

The thermal switch is designed to open when the temperature in the lamp housing gets too high. When the switch opens, the power supply shuts down, turning the projector off.

When a projector shuts down after operating for a few minutes, you need to check the thermal switch operation. First, power up the projector with the top off (page 89). Let the projector run until it shuts down. Measure the resistance at the cable connections. If the resistance is **zero**, replace the safety switch assembly (page 55), which includes the thermal switch.



## Check the color wheel and reseal the cable

If the color wheel cable is not properly seated in its ZIF connector, the color wheel will not start when the Power button is pressed. When the color wheel does not spin, there is no lamp enable signal, and the lamp will not strike.

Normally, you hear the brief high-pitched sound when the color wheel spins up to speed. If you don't hear the sound, or if you are not sure, you can do a visual check to confirm the color wheel operation.

If the color wheel is not spinning, the first item to check is the color wheel cable connection. Reseat it if necessary.

To check color wheel operation and reseal the cable, do the following:

- 1 Remove the following parts:

Top case (see page 20)

Front bezel and Front Bezel Vent (see page 13)

---

**NOTE** The lamp and the lamp door must be in place to start the projector with the top case removed.

---

- 2 To power up the projector, point a compatible remote at the *rear* of the projector, and press the Power button on the remote.

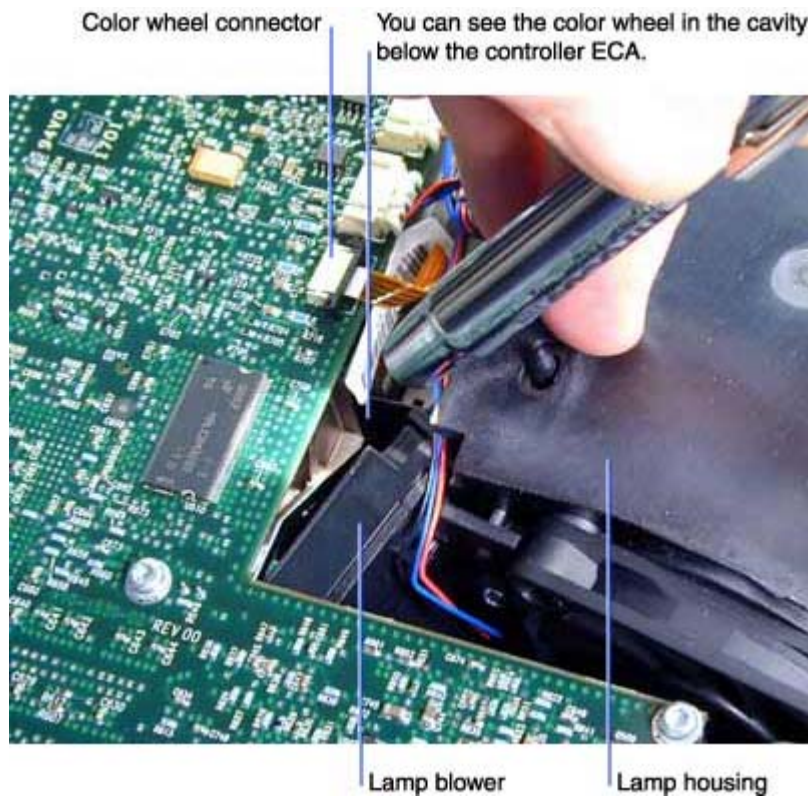
If you do not have a remote, go to page 98 to see how to power up the projector with the keypad.

---

**CAUTION** When you power the projector up, there is voltage present on the controller ECA and power supply. Be very careful where you probe and where you touch.

---

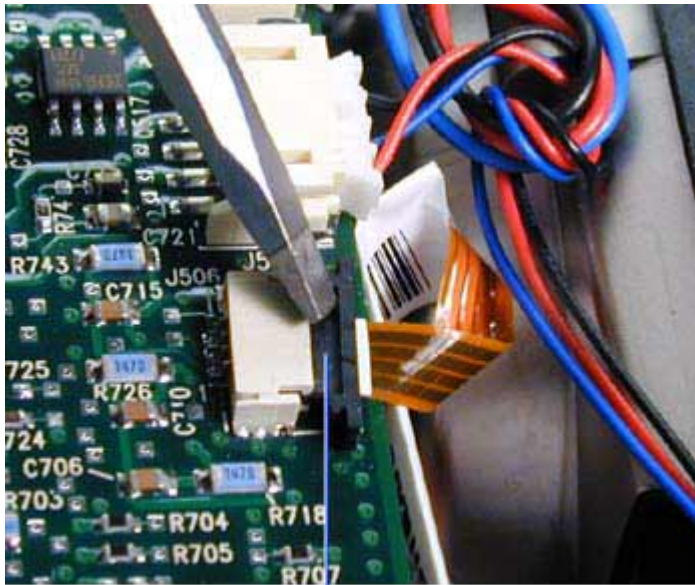
- 3 Shine a flashlight between the lamp housing and the controller ECA near the color wheel cable connector. You should be able to tell if the color wheel is spinning.



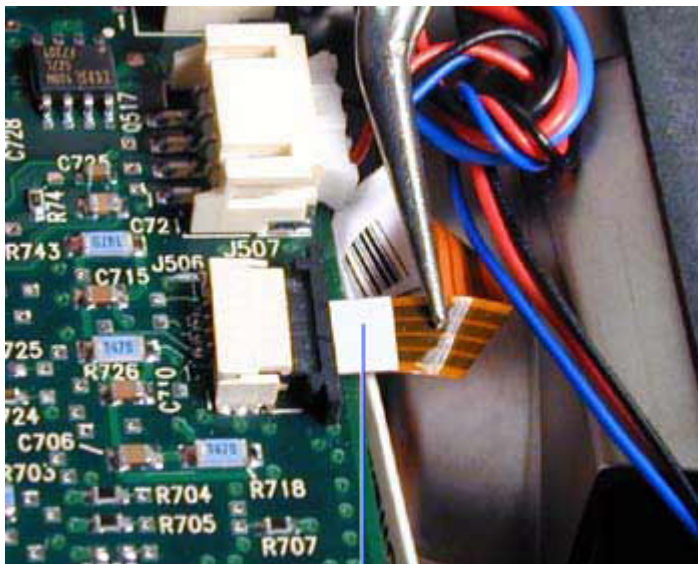


- 4 If the color wheel is not spinning, check and reseat the color wheel cable connection.

To reseat the cable, open the ZIF connector, and pull the cable out. Re-insert the cable fully, and then close the ZIF connector.

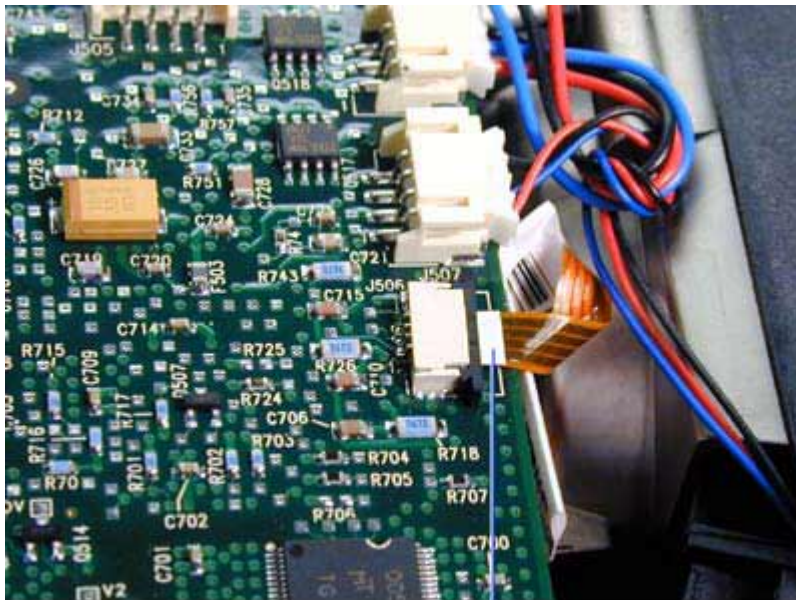


Slide the black latch outward to open the connector and reseat the cable.



This color wheel cable is not fully inserted into the ZIF connector.





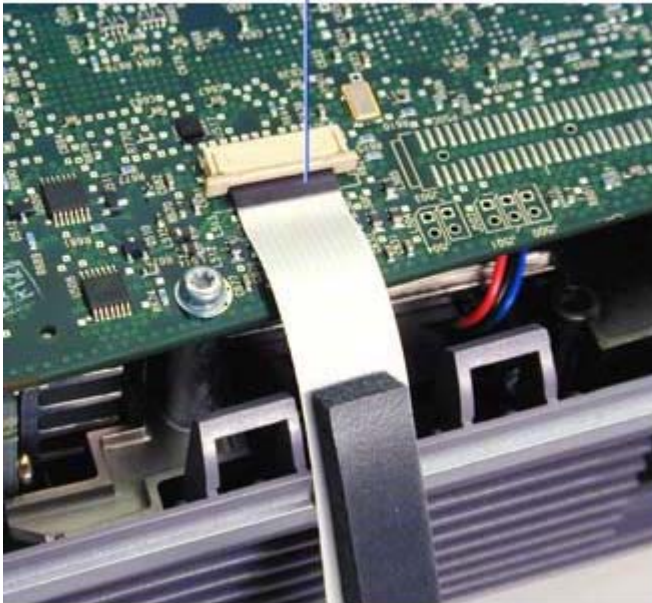
This is what the color wheel cable looks like when it is properly inserted. It should fit securely in the ZIF connector.

## Using the keypad to power up the projector


If you don't have a remote to start the projector with its top removed, you can use the keypad.

- 1 Remove the keypad from the inside of the top cover. To do this, remove the two M3x6 black Plastite Torx screws, then lift the keypad out of the top case.
- 2 Plug the keypad cable into the ZIF connector on the controller ECA.

The black side of the keypad cable should face upwards and should be partially visible when fully inserted in the ZIF connector.



- 3 Plug the power cable into the projector, then power up the projector by pressing the Power button

on the keypad. 



# Parts Lists

## Replaceable parts by alphabetic listing

Below is a numerically arranged list of FRUs used in the TDP-S3 and TDP-T3 projectors. You can also view FRUs by numeric listing (see page 100).

Part Name	Part Number	Projector	Notes
Adhesive, focus ring	329-0285-xx	All	Required when replacing the optical engine.
Bottom case	505-0970-xx	TDP-S3/T3	Includes leveling foot, rubber foot, elevator, light block louver and engine mount spacer.
Bottom case	505-1191-xx	TDP-MT5	Includes leveling foot, rubber foot, elevator, light block louver and engine mount spacer.
Certification label	020-1165-xx	TDP-T3	
Certification label	020-1271-xx	TDP-S3	
Certification label	020-1350-xx	TDP-MT5	
Chassis	330-0702-xx	All	
Controller ECA	510-1530-xx	TDP-T3	
Controller ECA	510-1575-xx	TDP-MT5	
Controller ECA	510-1579-xx	TDP-S3	
Controller/power supply cable	211-0161-xx	All	
Diode heat sink bracket	330-0742-xx	All	Also requires rear gap pad (329-0301-xx). Fits between the chassis and the bottom of the power supply.
Fastener Kit	802-0027-xx	All	Includes all fasteners necessary to attach each FRU in the projector.
Focus ring	505-0972-xx	All	
Front bezel	505-0976-xx	TDP-S3/T3	
Front bezel	505-1193-xx	TDP-MT5	
Front bezel vent	505-0969-xx	TDP-S3/T3	
Front bezel vent	505-1195-xx	TDP-MT5	
Front fan	526-0079-xx	All	Identical to the lamp fan.

Part Name	Part Number	Projector	Notes
Gap pad, rear diode	329-0301-xx	All	Adheres to the diode heat sink bracket (330-0742-xx).
Ground clip	330-0724-xx	All	Fastens to the chassis. Grounds to the optical engine.
I/O EMI shield	330-0703-xx	All	
I/O EMI shield gasket	329-0343-xx	TDP-MT5	
Keypad	526-0099-xx	All	
Lamp blower	526-0078-xx	All	Requires lamp blower heat shield (329-0337-xx). Also included with new optical engine.
Lamp blower heat shield	329-0337-xx	All	Required for new lamp blower.
Lamp door	505-0978-xx	TDP-S3/T3	
Lamp door	505-1196-xx	TDP-MT5	
Lamp fan	526-0079-xx	All	Requires a lamp fan heat shield (329-0306-xx). Also included with new optical engine. Identical to the front fan.
Lamp fan heat shield	329-0306-xx	All	Required for new lamp fan.
Lamp module	SP-Lamp-LP5E	All	
Lens cap	505-0964-xx	All	
Optical engine	505-1173-xx	TDP-MT5	Requires focus ring adhesive (329-0285-xx)
Optical engine	505-1180-xx	TDP-T3	Requires focus ring adhesive (329-0285-xx)
Optical engine	505-1181-xx	TDP-S3	Requires focus ring adhesive (329-0285-xx)
Power supply	510-1532-xx	All	
Power supply fan	526-0098-xx	All	
Power supply fuse	749-0026-xx	All	Also comes with new power supply.
Power supply insulator	329-0268-xx	TDP-S3/T3	Fits between the power supply and chassis.
Power supply insulator	329-0321-xx	TDP-MT5	Fits between the power supply and chassis.

Part Name	Part Number	Projector	Notes
Rear bezel	505-0966-xx	TDP-S3/T3	Also called I/O panel cover. Also requires rear bezel label (020-1137-xx)
Rear Bezel	505-1129-xx	TDP-MT5	
Rear bezel label	020-1177-xx	All	
Safety switch assembly	526-0080-xx	All	Includes thermal switch and interlock switch.
Safety switch cable	211-0162-xx	All	Connects the interlock switch assembly with the power supply.
Speaker	526-0081-xx	All	Requires new speaker gasket (329-0276-xx).
Speaker bracket	340-0888-xx	All	
Speaker gasket	329-0276-xx	All	Required when replacing speaker.
Top case	505-0982-xx	TDP-S3/T3	
Top case	505-1188-xx	TDP-MT5	
Toshiba Nameplate	505-1060-xx	TDP-S3/T3	
Toshiba Nameplate	505-1197-xx	TDP-MT5	
Zoom ring	505-0974-xx	All	

## Replaceable parts by numeric listing

Below is a numerically arranged list of FRUs used in the TDP-S3 and TDP-T3 projectors. You can also view FRUs by alphabetic listing (see page 100).

Part Number	Part Name	Projector	Notes
020-1165-xx	Certification label	TDP-T3	
020-1177-xx	Rear bezel label	All	
020-1271-xx	Certification label	TDP-S3	
020-1350-xx	Certification label	TDP-MT5	
211-0161-xx	Controller/power supply cable	All	
211-0162-xx	Safety switch cable	All	Connects the Safety switch assembly with the power supply.
329-0268-xx	Power supply insulator	TDP-S3/T3	Fits between the power supply and chassis.
329-0276-xx	Speaker gasket	All	Required when replacing speaker.
329-0285-xx	Adhesive, focus ring	All	Required when replacing optical engine
329-0301-xx	Gap pad, rear diode	All	Adheres to the diode heat sink bracket (330-0742-xx).
329-0306-xx	Lamp fan heat shield	All	Required for new lamp fan.
329-0321-xx	Power supply insulator	TDP-MT5	Fits between the power supply and chassis.
329-0337-xx	Lamp blower heat shield	All	Required for new lamp blower.
329-0343-xx	IO EMI, shield gasket	TDP-MT5	
330-0702-xx	Chassis	All	
330-0703-xx	I/O EMI shield	All	
330-0724-xx	Ground clip	All	Fastens to the chassis. Grounds to the optical engine.
330-0742-xx	Diode heat sink bracket	All	Also requires rear gap pad (329-0301-xx). Fits between the chassis and the bottom of the power supply.
340-0888-xx	Speaker bracket	All	
505-0964-xx	Lens cap	All	
505-0966-xx	Rear bezel	TDP-S3/T3	Also called I/O panel cover. Also requires rear bezel label (020-1137-xx)

Part Number	Part Name	Projector	Notes
505-0969-xx	Front bezel vent	TDP-S3/T3	
505-0970-xx	Bottom case	TDP-S3/T3	Includes leveling foot, rubber foot, elevator, light block louver and engine mount spacer.
505-0972-xx	Focus ring	All	
505-0974-xx	Zoom ring	All	
505-0976-xx	Front bezel	TDP-S3/T3	
505-0978-xx	Lamp door	TDP-S3/T3	
505-0982-xx	Top case	TDP-S3/T3	
505-1060-xx	Toshiba Nameplate	TDP-S3/T3	
505-1129-xx	Rear Bezel	TDP-MT5	
505-1173-xx	Optical engine	TDP-MT5	Requires focus ring adhesive (329-0285-xx)
505-1180-xx	Optical engine	TDP-T3	Requires focus ring adhesive (329-0285-xx)
505-1181-xx	Optical engine	TDP-S3	Requires focus ring adhesive (329-0285-xx)
505-1188-xx	Top case	TDP-MT5	
505-1191-xx	Bottom case	TDP-MT5	Includes leveling foot, rubber foot, elevator, light block louver and engine mount spacer.
505-1193-xx	Front bezel	TDP-MT5	
505-1195-xx	Front bezel vent	TDP-MT5	
505-1196-xx	Lamp door	TDP-MT5	
505-1197-xx	Toshiba Nameplate	TDP-MT5	
510-1530-xx	Controller ECA	TDP-T3	
510-1532-xx	Power supply	All	
510-1575-xx	Controller ECA	TDP-MT5	
510-1579-xx	Controller ECA	TDP-S3	
526-0078-xx	Lamp blower	All	Requires lamp blower heat shield (329-0337-xx). Also included with new optical engine.
526-0079-xx	Lamp fan and Front fan	All	The lamp fan requires a heat shield (329-0306-xx). The lamp and front fans are identical.



Part Number	Part Name		Projector	Notes
526-0080-xx	Safety switch assembly	All		Includes thermal switch and interlock switch.
526-0081-xx	Speaker	All		Requires new speaker gasket (329-0276-xx).
526-0098-xx	Power supply fan	All		
526-0099-xx	Keypad	All		
749-0026-xx	Power supply fuse	All		Also comes with new power supply.
802-0027-xx	Fastener Kit	All		Includes all fasteners necessary to attach each FRU in the projector.
SP-Lamp-LP5E	Lamp module	All		

## Fasteners and Torque Settings

Below is a list of the fasteners included in the fastener kit (802-0027-xx) for the TDP-S3 and TDP-T3 projectors. You'll also find the suggested torque settings for each fastener.

Fastener	Application	Torque
Jack nut 4-40 w/lock	I/O EMI shield to controller ECA (2)	2 in.-lbs. (.226 Nm)
M1.8x8 Phillips Plastite	Interlock switch to lamp housing (1)	4 in.-lbs. (.452 Nm)
M3x6 Torx	Ground clip to chassis (1), diode heat sink bracket to chassis (1)	6 in.-lbs. (.68 Nm)
M3x6 Torx, Black Plastite	Speaker to speaker bracket (2), Keypad to top case (2)	4 in.-lbs. (.452 Nm)
M3x8 Torx with shoulder washer	Power supply (6) to chassis, optical engine to bottom case (3), rear bezel to chassis (2), chassis to engine (2), lamp connector to lamp housing (2), controller ECA (8), speaker bracket to chassis (1)	Lamp connector: 4 in.-lbs. (.452 Nm) Others: 6 in.-lbs. (.68 Nm)
M3x8 Black Torx	Front bezel (2)	4 in.-lbs. (.452 Nm)
M3x12 Black Torx	Front bezel vent (1)	4 in.-lbs. (.452 Nm)
M3x8 Torx Plastite	Chassis to bottom case (2), engine mount bracket to bottom case (1), lamp blower (1), optical engine to bottom case (3)	6 in.-lbs. (.452 Nm)
M3x10 Torx	Power supply fan to chassis (2)	6 in.-lbs. (.68 Nm)
M3x12 Torx Plastite	Lamp fan (2)	6 in.-lbs. (.68 Nm)
M3x14 Philips Pan Head	Front fan to optical engine (2)	6 in.-lbs. (.68 Nm)
M3x48 Black Torx	Top case to bottom case (2)	4 in.-lbs. (.452 Nm)

## Standard Accessories

Below is a list of accessories packaged with the TDP-S3/T3/MT5. See Optional Accessories on the Toshiba web site for a complete list of optional accessories.

Description	Part Number	Projector	Notes
User's Guide – TDP-S3/T3	010-0301-xx	TDP-S3/T3	English only
User's Guide – TDP-MT5	010-0323-xx	TDP-MT5	Includes translated versions.
Ship Box	110-0438-xx	All	
Soft case	110-0440-xx	All	
Lens Cap	505-00964-xx	All	
Lamp door	505-1196-xx	TDP-MT5	
Lamp door	505-0978-xx	TDP-S3/T3	
Remote control	590-0409-xx	All	
Lamp Door	505-0978-xx	TDP-S3/T3	
Lamp Door	505-1196-xx	TDP-MT5	
Lamp Module	SP-Lamp-LP5E	All	Installed in projector.
Audio Cable	210-0118-xx	TDP-S3/T3	
Data Cable	210-0119-xx	TDP-MT5	HD15 to HD15 MM
SVHS Cable	210-0125-xx	TDP-MT5	MD4 to MD4
RCA Video Cable	210-0176-xx	TDP-S3/T3	
AV Cable	210-0053-xx	All	
Audio adaptor cable	210-0177-xx	TDP-S3/T3	RCA to 3.5mm
X-Pack expansion module	591-0258-00	MT5	
M1-A cable	210-0185-xx	TDP-S3/T3	Analog M1-A to USB and VGA
<b>Power Cords</b> (Power cord depends upon destination country)			
Computer audio cable	210-0118-xx		
North American	210-0023-xx		
Australian	210-0027-xx		
British	210-0028-xx		
European	210-0029-xx		
Danish	210-0030-xx		
Swiss	210-0031-xx		